ORDER NO. KMS0006822S2

Service Manual

ADVANCED HYBRID SYSTEM

KX-TA308CE / KX-TA616CE

(for Europe and Other areas)

Please file and use this supplement manual together with the service manual for Model KX-TA308, KX-TA616

Panasonic

Note:Supplement-1~2 have already supplied with printed matter. So please refer to that.

1. REFERENCE MODEL

KX-TA30860X
KX-TA30874X
KX-TA30877CE
KX-TA30891X
KX-TA30893X
KX-A227X

2. CHANGES

2.1. Subject

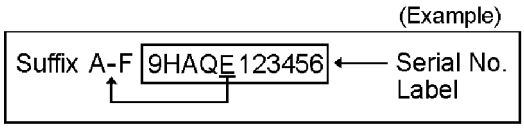
KX-TA308CE/KX-TA616CE

Suffix	Reason for suffix change
D → E	Change of the Resistor for improvement.
E → F	Change of the software. (IC101 : ROM Ver. Y551U → Y581F)

KX-TA30893X

Suffix	Reason for suffix change
A → B	Addition of the leaflet.

2.2. Suffix location



2.3. REPLACEMENT PARTS LIST

Reason for Change (Symbol:A) Following 1-8 reasons are indicated on the Notes in the bottom column.	
1. Improve performance	
2. Change of material or dimension	
3. To meet approved specification	
4. Standardization	
5. Addition	
6. Deletion	
7. Correction	
8. Other	

Interchangeability code (Symbol:B) Following V-Z interchangeabilities are indicated on the Notes in the bottom column.			
	Parts	Set Production	Description
V	Original / New	Early (before change) / Late (after change)	Original or new parts may be used in early or late production sets. Use original parts until exhausted, then stock new parts.
W	Original / New	Early (before change) / Late (after change)	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
X	Original / New	Early (before change) / Late (after change)	New parts only may be used in early or late production sets. Stock new parts.
Y	Original / New	Early (before change) / Late (after change)	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
Z	Other		

KX-TA308CE/KX-TA616CE

Ref. No.	Part No.		Part Name & Description	Pcs	Remarks	Notes		
	Original Part	New Part						
CABINET AND ELECTRICAL PARTS								
16	----------	PSGT2049Z	NAME PLATE / (KX-TA308CE :Made in Malaysia)	1		5		
ACCESSORIES AND PACKING MATERIALS								
P1	----------	PSPK1808Z	PACKING CASE / (KX-TA308CE:Made in Malaysia)	1		5		
MAIN BOARD PARTS								
IC101	PSWITA308CE2	PSWITA308CE3	IC (ROM)	1		1	X	
R123-R125	PQLQR1RM601	ERJ3GEYJ390	RESISTOR, 39 Ω	3		1	X	

KX-TA30893X

Ref. No.	Part No.		Part Name & Description	Pcs	Remarks	Notes		T c
	Original Part	New Part						
ACCESSORIES AND PACKING MATERIALS								
	----------	PSQW1512Z	LEAFLET	1		5		

N.T.(Q) / KXTA308CE/KXTA616CE / KXTA30860X/KXTA30874X / KXTA30877CE/KXTA30891X / KXTA30893X/KXA227X / Printed in Japan

Service Manual

TOP NEXT

ORDER NO. KMS0401890C1

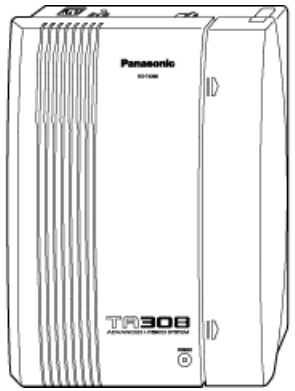
F19

Service Manual

Advanced Hybrid System

- KX-TA308

(for U.S.A.)



⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.
Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

When you note the serial number, write down all of the 11 digits. The serial number may be found on the unit.

Panasonic

IMPORTANT INFORMATION ABOUT LEAD FREE, (PbF), SOLDERING

If lead free solder was used in the manufacture of this product the printed circuit boards will be marked PbF.

Standard leaded, (Pb), solder can be used as usual on boards without the PbF mark.

When this mark does appear please read and follow the special instructions described in this manual on the use of PbF and how it might be permissible to use Pb solder during service and repair work.

TOP NEXT

1 ABOUT LEAD FREE SOLDER (PbF: Pb free)

Note:

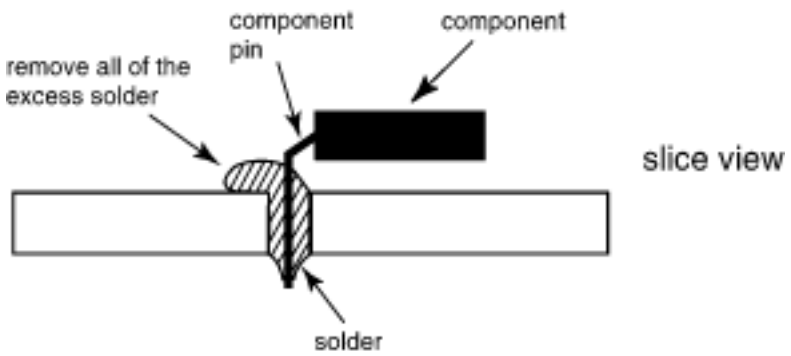
In the information below, Pb, the symbol for lead in the periodic table of elements, will refer to standard solder or solder that contains lead.

We will use PbF when discussing the lead free solder used in our manufacturing process which is made from Tin, (Sn), Silver, (Ag), and Copper, (Cu).

This model, and others like it, manufactured using lead free solder will have PbF stamped on the PCB. For service and repair work we suggest using the same type of solder although, with some precautions, standard Pb solder can also be used.

Caution

- PbF solder has a melting point that is 50° ~ 70° F, (30° ~ 40°C) higher than Pb solder. Please use a soldering iron with temperature control and adjust it to 700° ± 20° F, (370° ± 10°C).In case of using high temperature soldering iron, please be careful not to heat too long.
- PbF solder will tend to splash if it is heated much higher than its melting point, approximately 1100°F, (600°C).
- If you must use Pb solder on a PCB manufactured using PbF solder, remove as much of the original PbF solder as possible and be sure that any remaining is melted prior to applying the Pb solder.
- When applying PbF solder to double layered boards, please check the component side for excess which may flow onto the opposite side (See figure, below).



1.1 SUGGESTED PbF SOLDER

1.2 HOW TO RECOGNIZE THAT Pb FREE SOLDER IS USED

TOP PREVIOUS NEXT

1.1 SUGGESTED PbF SOLDER

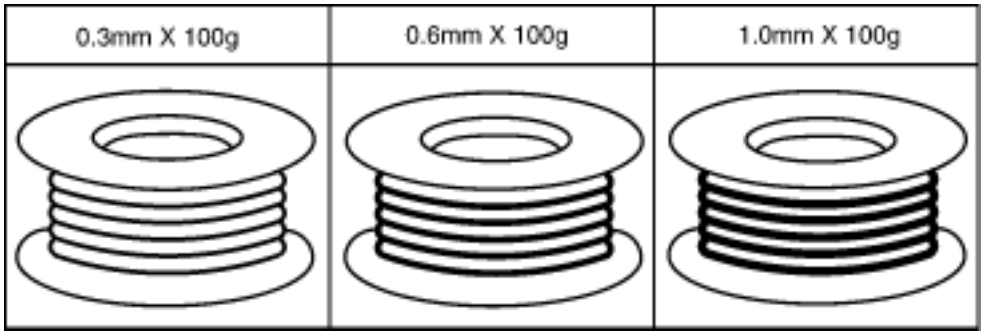
There are several types of PbF solder available commercially. While this product is manufactured using Tin, Silver, and Copper,

(Sn+Ag+Cu), you can also use Tin and Copper, (Sn+Cu), or Tin, Zinc, and Bismuth, (Sn+Zn+Bi). Please check the manufac

turer s specific instructions for the melting points of their products and any precautions for using their product with other

materials.

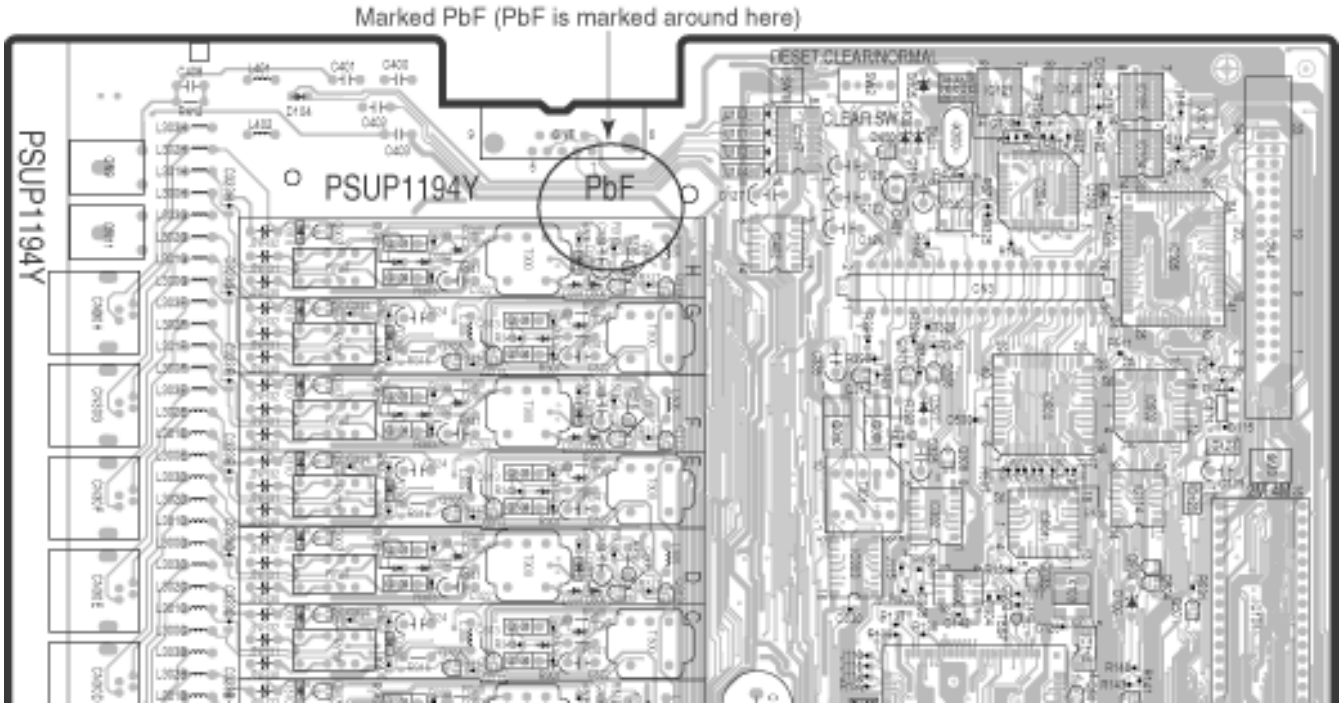
The following lead free (PbF) solder wire sizes are recommended for service of this product: 0.3mm, 0.6mm and 1.0mm.



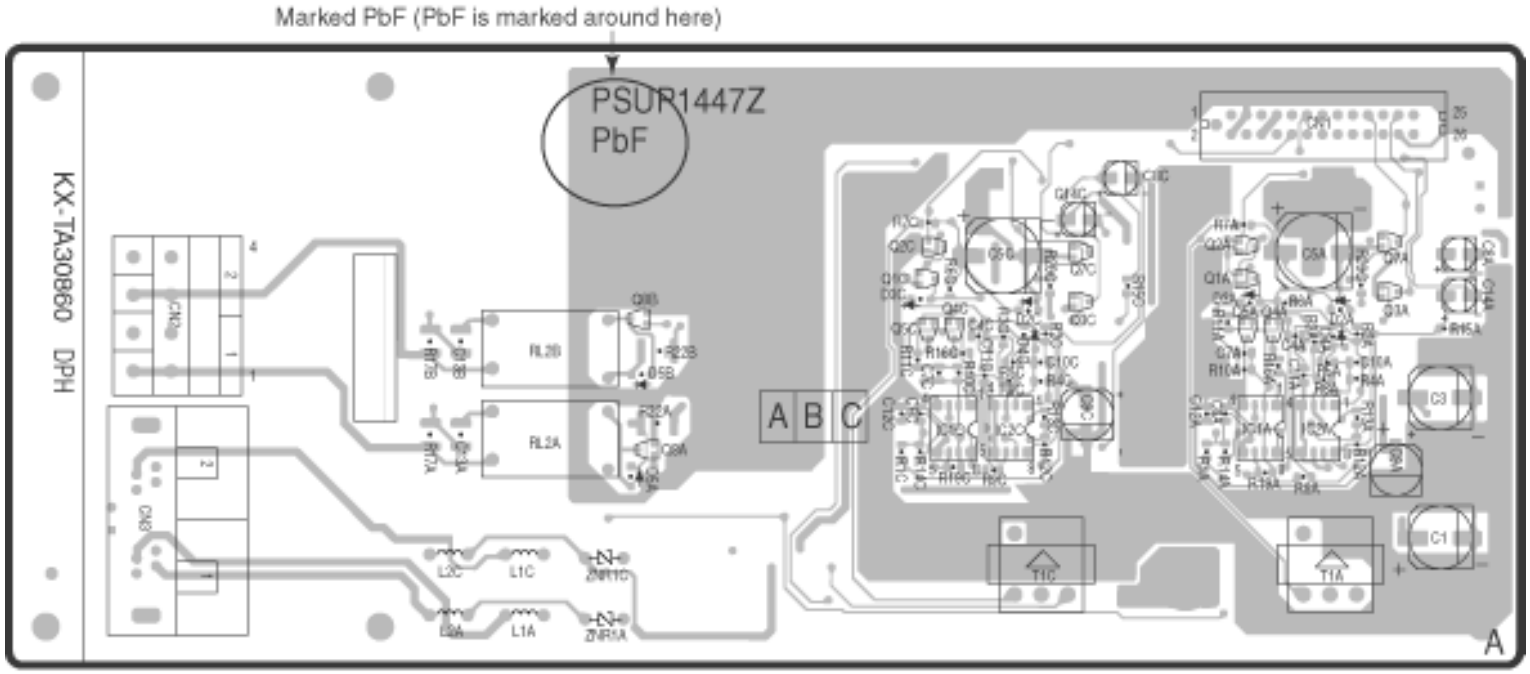
1.2 HOW TO RECOGNIZE THAT Pb FREE SOLDER IS USED

TOP PREVIOUS NEXT

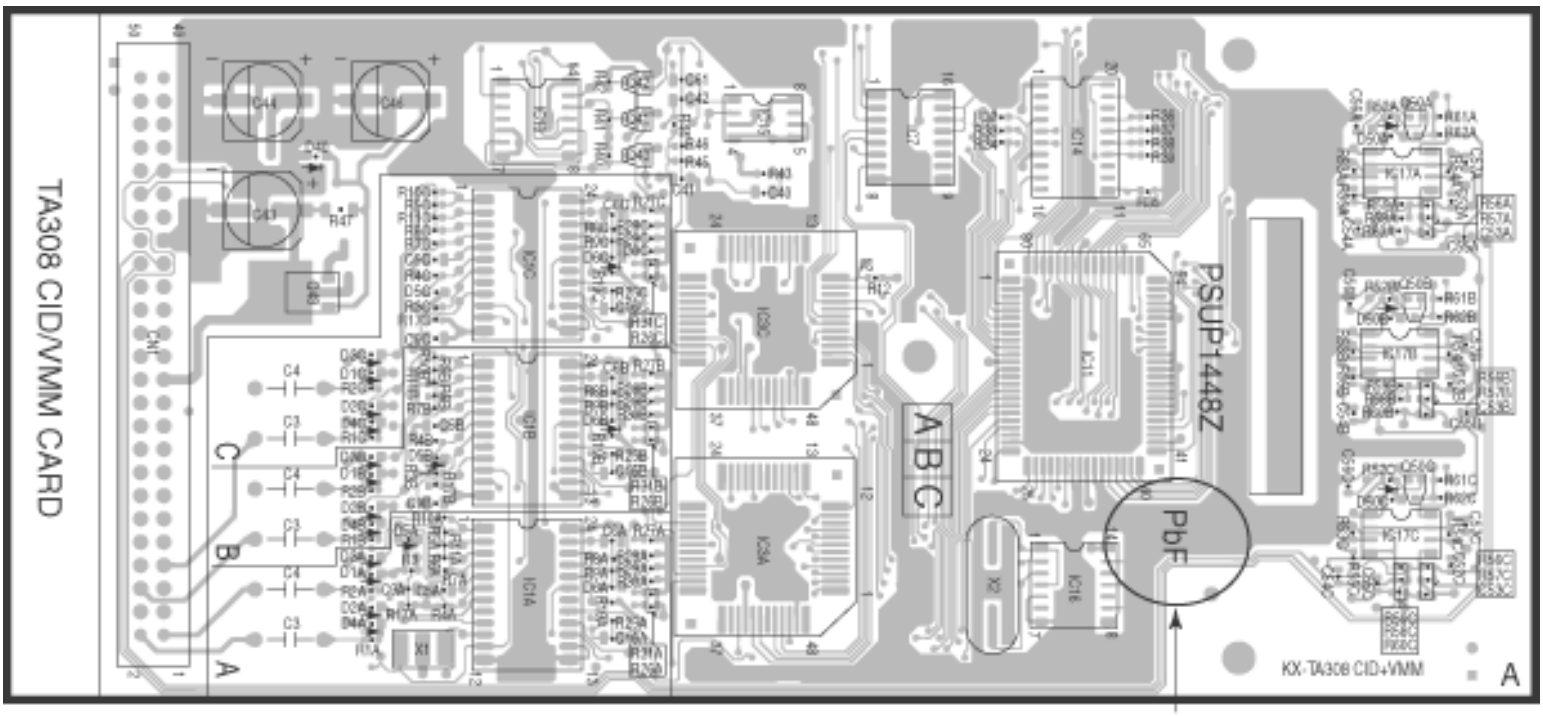
MAIN BOARD



DOORPHONE/DOOR-OPENER CARD



CALLER ID CARD



Marked PbF (PbF is marked around here)

TOP PREVIOUS NEXT

2 FOR SERVICE TECHNICIANS

ICs and LSIs are vulnerable to static electricity.

When repairing, the following precautions will help prevent recurring malfunctions.

1. Cover the plastic parts boxes with aluminum foil.
2. Ground the soldering irons.
3. Use a conductive mat on the worktable.
4. Do not touch IC or LSI pins with bare fingers.

3 CAUTION

TOP PREVIOUS NEXT

3.1 SAFETY PRECAUTIONS

3.2 INSULATION RESISTANCE TEST

3.3 BATTERY CAUTION

3.4 POWER CAUTION

3.5 WARNIG

3.6 NOTE

TOP PREVIOUS NEXT

3.1 SAFETY PRECAUTIONS

1. Before servicing, unplug the power cord to prevent an electric shock.

2. When replacing parts, use only the manufacturer´s recommended components for safety.

3. Check the condition of the power cord. Replace if wear or damage is evident.

4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.

5. Before returning the serviced equipment to the customer, be sure to perform the following insulation resistance test to prevent the customer from being exposed to shock hazards.

3.2 INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.

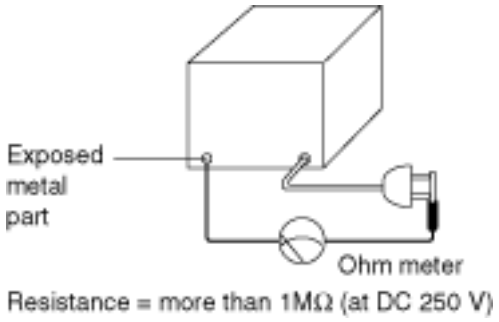
2. Turn on the power switch.

3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screw threads, control shafts, handle brackets, etc.

   Note:

   Some exposed parts may be isolated from the chassis by design. These will read infinity.

4. If the measurement is outside the specified limits, there is a possibility of shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.



3.3 BATTERY CAUTION

Danger of explosion if the battery is replaced incorrectly. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to following caution:

Disposal or transportation of lithium batteries should be performed by permitted, in accordance with federal, state and local guidelines.

A battery continues to have no transportation limitations as long as it is separated to prevent short circuits and packed in strong packaging.

Commercial firms that dispose of any quantity of lithium cells should have a mechanism in place to account for their ultimate disposition. This is a good practice for all types of commercial or industrial waste.

When the lithium battery is exchanged, the clock settings are cleared. In this case, make clock settings again.

Recommend Type Number:

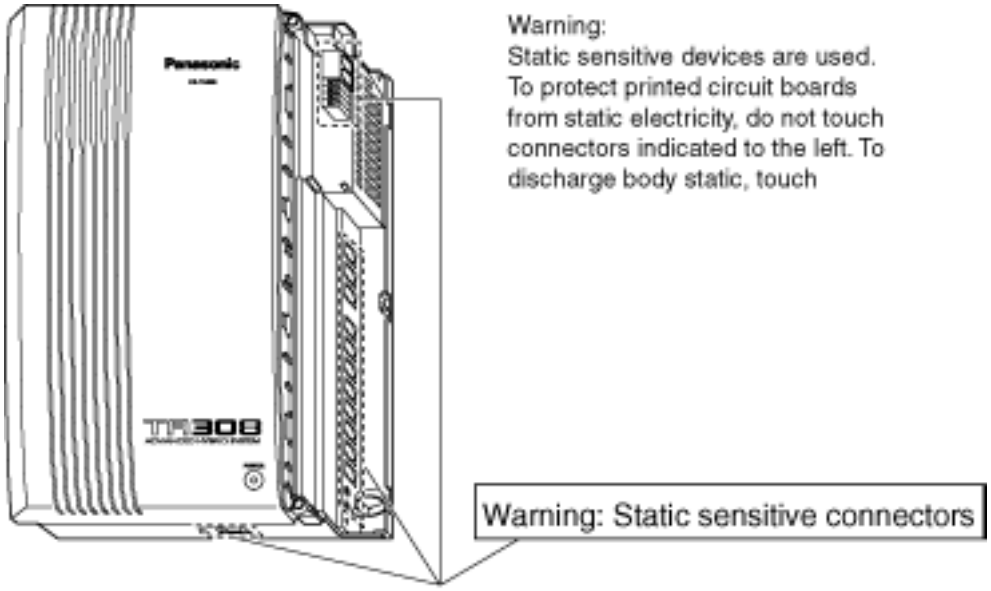
PQPCR2032H09 (BATT) Manufactured by MATSUSHITA

3.4 POWER CAUTION

The power socket wall outlet should be located near this equipment and be easily accessible.

3.5 WARNIG

TOP PREVIOUS NEXT


Warning:
Static sensitive devices are used.
To protect printed circuit boards
from static electricity, do not touch
connectors indicated to the left. To
discharge body static, touch
Warning: Static sensitive connectors

TOP PREVIOUS NEXT

3.6 NOTE

For details of installation, refer to the System Reference Manual.

4 SYSTEM CAPACITY AND SPECIFICATIONS

TOP PREVIOUS NEXT

ITEM		KX-TA308SYSTEM
COL		3
EXTENSION	KEY TELEPHONE/SINGLE LINE TELEPHONE	8
INTERCOM PATH		4
DOOR-PHONE PATH		2
DIALING	OUTWARD	DIAL PULSE 10PPS, 20PPS TONE DIAL
	INTERNAL	DIAL PULSE 10PPS, 20PPS TONE DIAL
	MODE CONVERSION	DP-DTMF, DTMF-DP
DTMF GENERATOR		1
DTMF RECEIVER		2
SMDR		1
DIMENSION	SERVICE UNIT	1
	DOOR/DOOROPENER CARD	1
	CALL ID CARD	1
CONTROL METHOD		CPU: 16BITS CPU RAM: 1MB ROM: 4MB
SWITCHING		SPACE DIVISION CMOS CROSSPOINT SWITCH
POWER SUPPLY	PRIMARY	AC120V, 60Hz
	SECONDARY	+26V, +5.8V
RING VOLTAGE		80VRMS 20Hz
POWER CONSUMPTION	OPERATION	45W

TOP PREVIOUS NEXT

5 SYSTEM CONFIGURATION

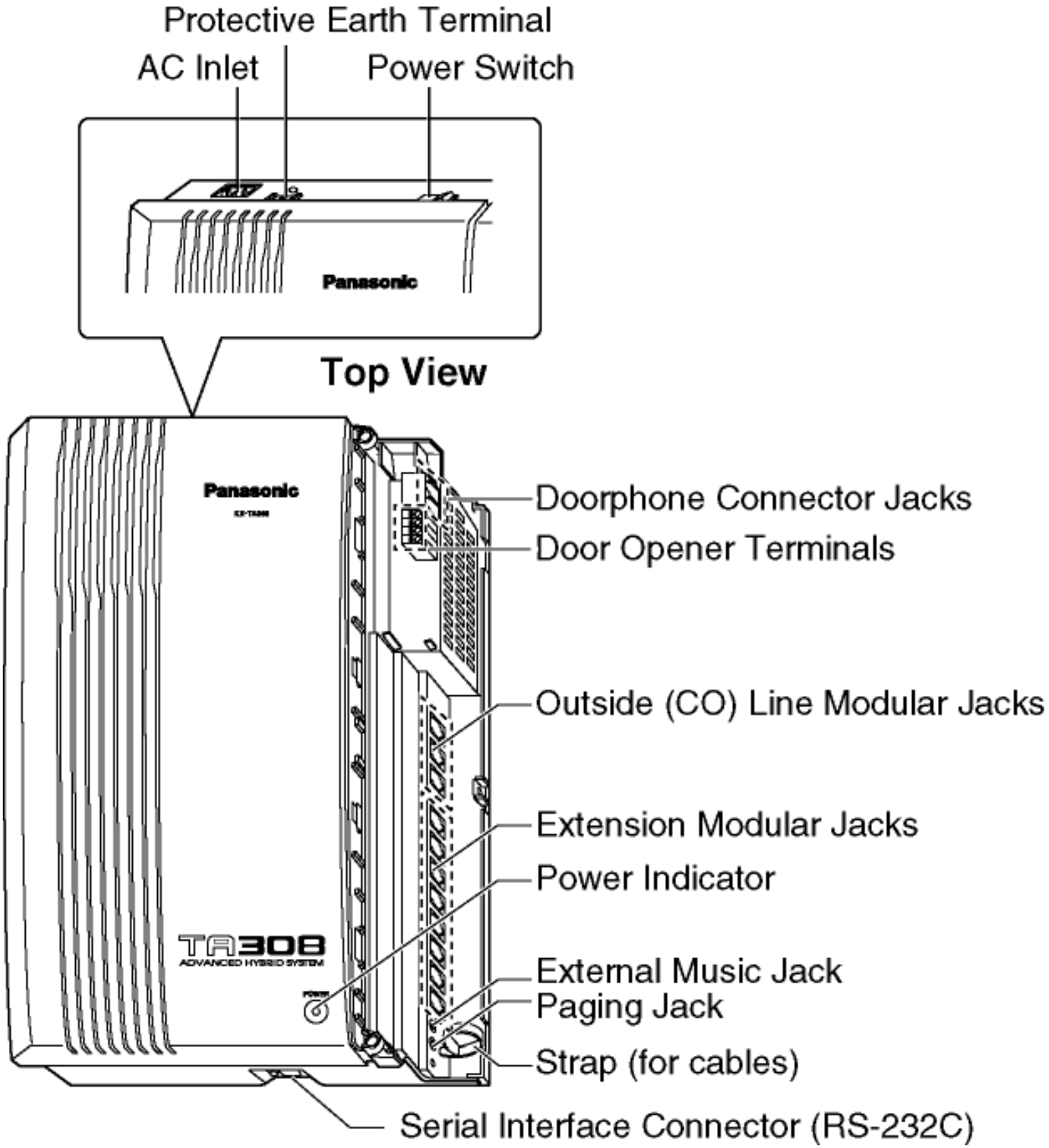
TOP PREVIOUS NEXT

CARD NAME	DESCRIPTION	QUANTITY	REMARKS
MAIN BOARD	3 COL/8 EXTENSION (8HYBRID)	1	-
DOORPHONE/OPENER	-	1	DOOR-PHONE 2 PORT DOOR-OPENER 2 PORT
CALL ID CARD	-	1	3 COL CALL ID CARD

TOP PREVIOUS NEXT

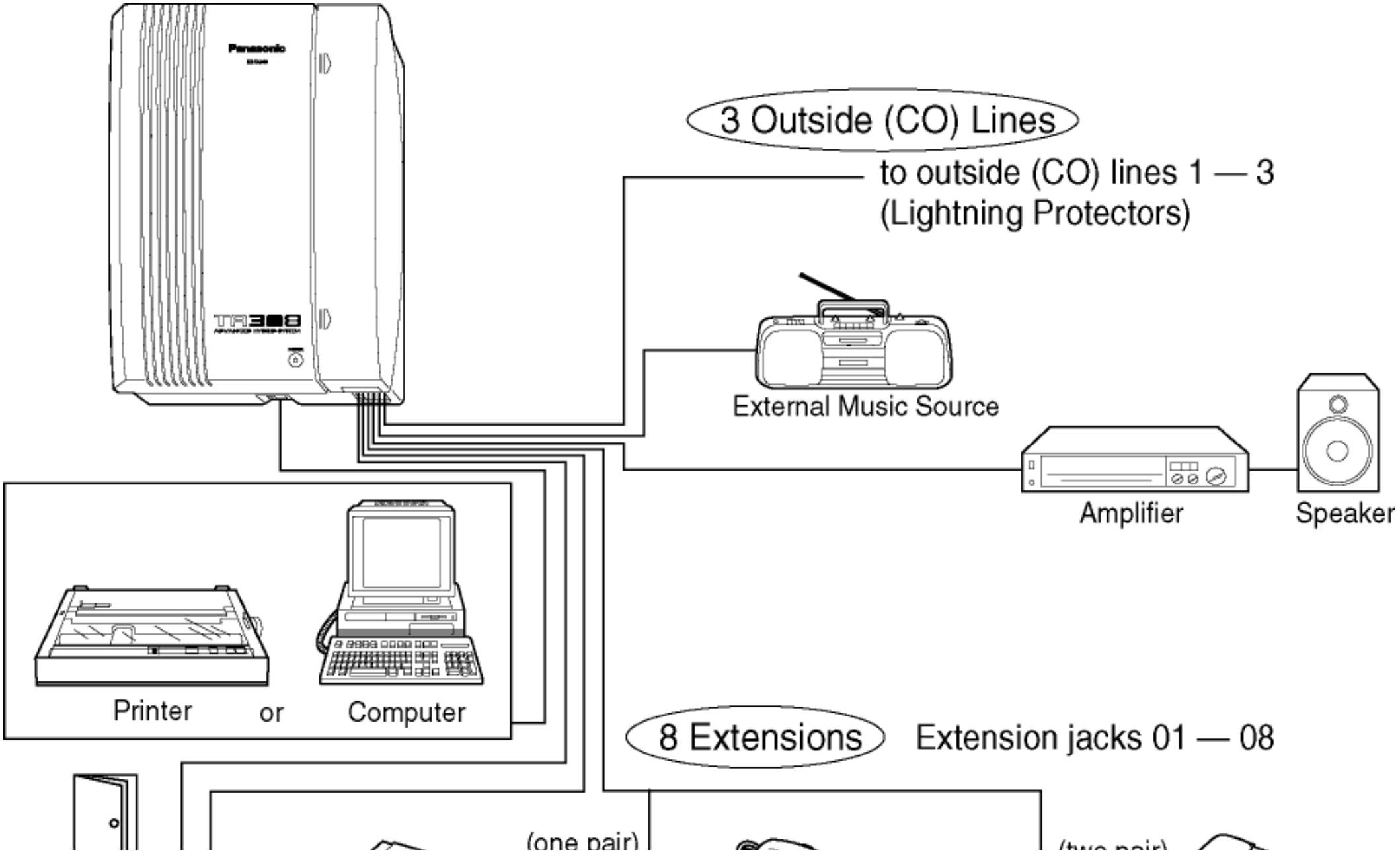
6 LOCATION OF CONTROLS

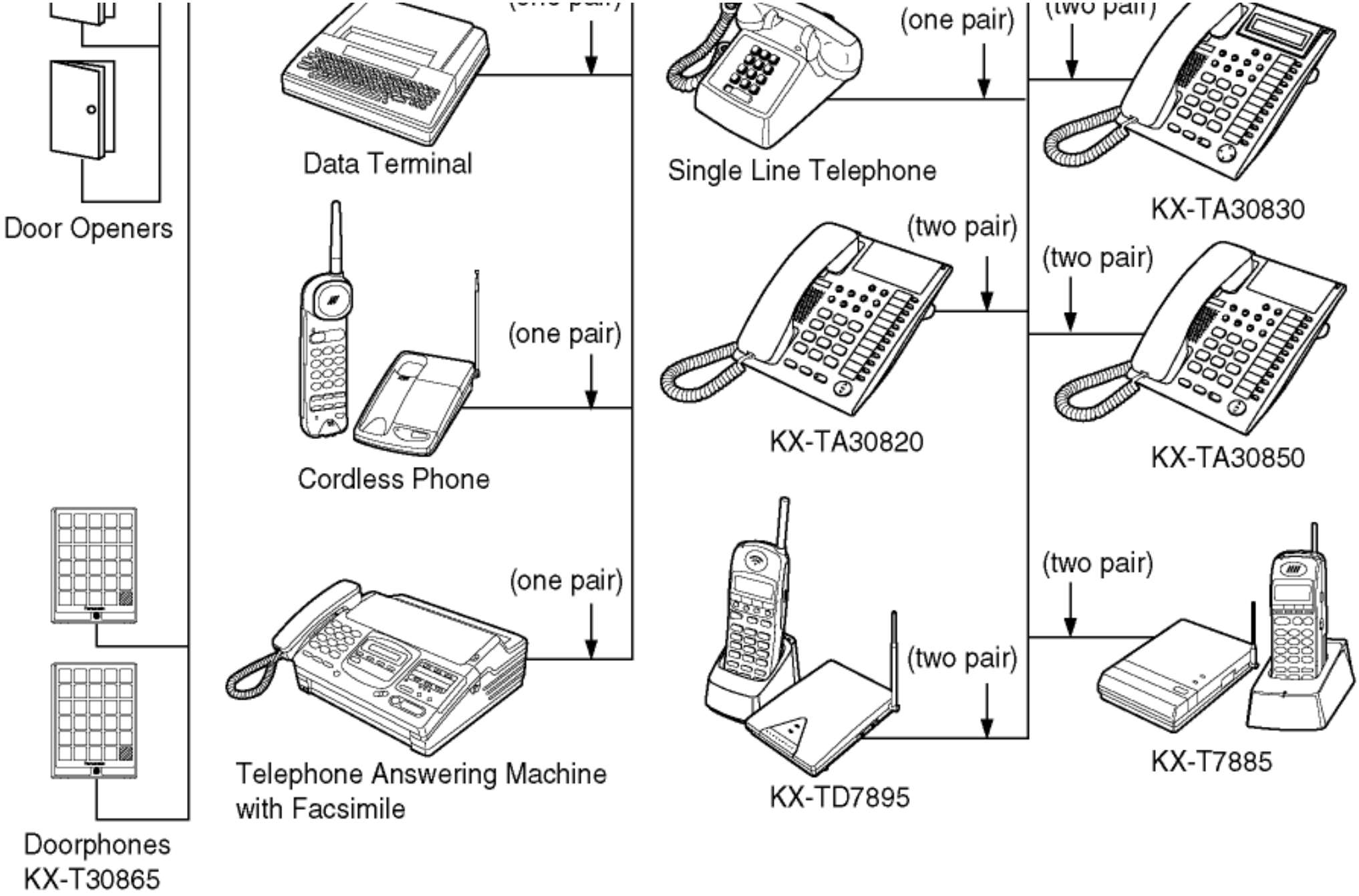
TOP PREVIOUS NEXT



TOP PREVIOUS NEXT

7 SYSTEM CONNECTION DIAGRAM




Door Openers
Data Terminal
(one pair)
Single Line Telephone
(one pair)
(two pair)
KX-TA30830
Cordless Phone
(one pair)
KX-TA30820
(two pair)
(two pair)
KX-TA30850
Telephone Answering Machine
with Facsimile
(one pair)
KX-TD7895
(two pair)
KX-T7885
(two pair)
Doorphones
KX-T30865

Note:

- It is recommended that the extension of jack 01 is a display proprietary telephone.
- Parallel connection telephones is possible. Refer to Installation Manual.

TOP PREVIOUS NEXT

8 DISASSEMBLY INSTRUCTIONS

TOP PREVIOUS NEXT

8.1 HOW TO REMOVE THE COVER

8.2 HOW TO REMOVE THE POWER SUPPLY BOARD

8.3 HOW TO REMOVE THE MAIN BOARD

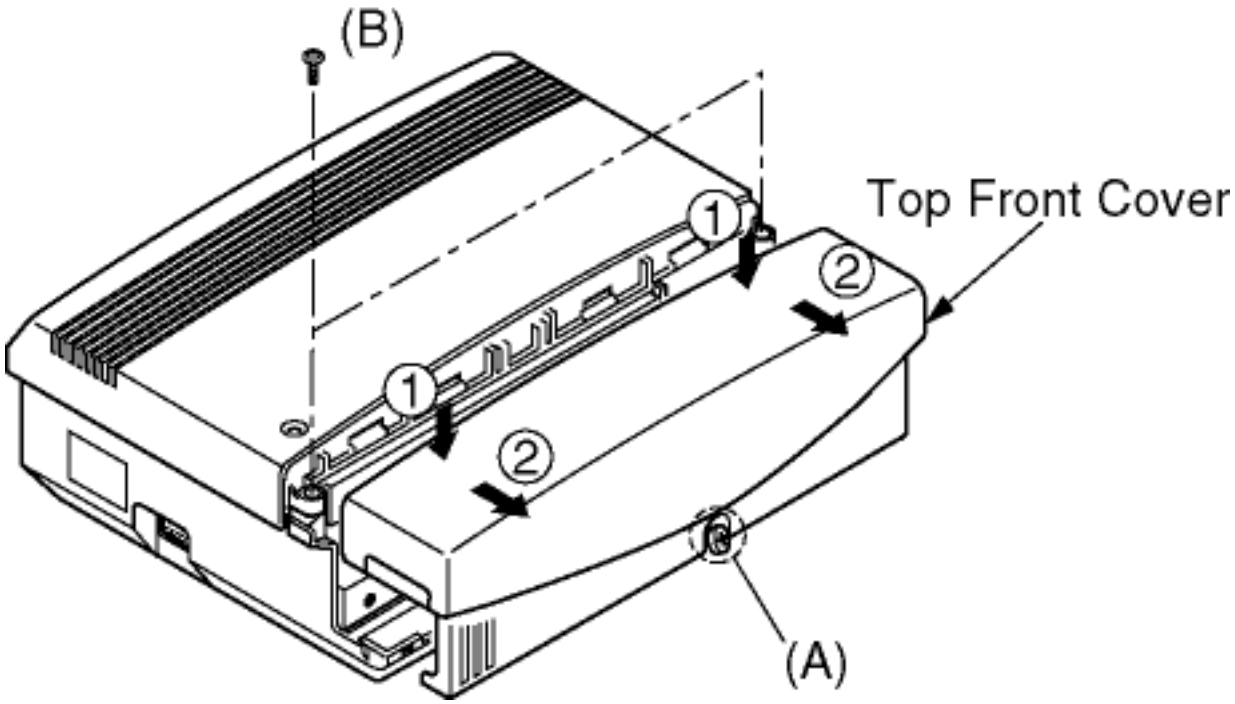
8.4 HOW TO REMOVE THE DOORPHONE / DOOR-OPENER CARD

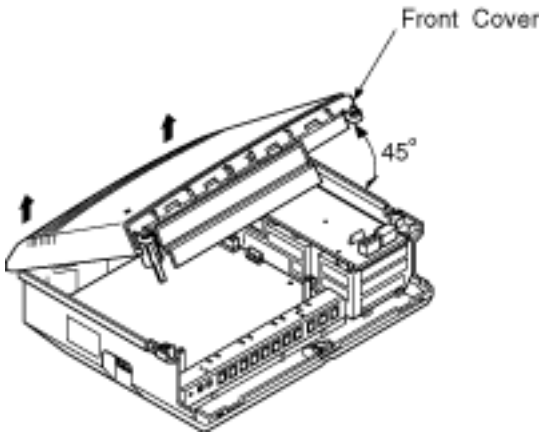
8.5 HOW TO REMOVE THE CALLER ID CARD

TOP PREVIOUS NEXT

8.1 HOW TO REMOVE THE COVER

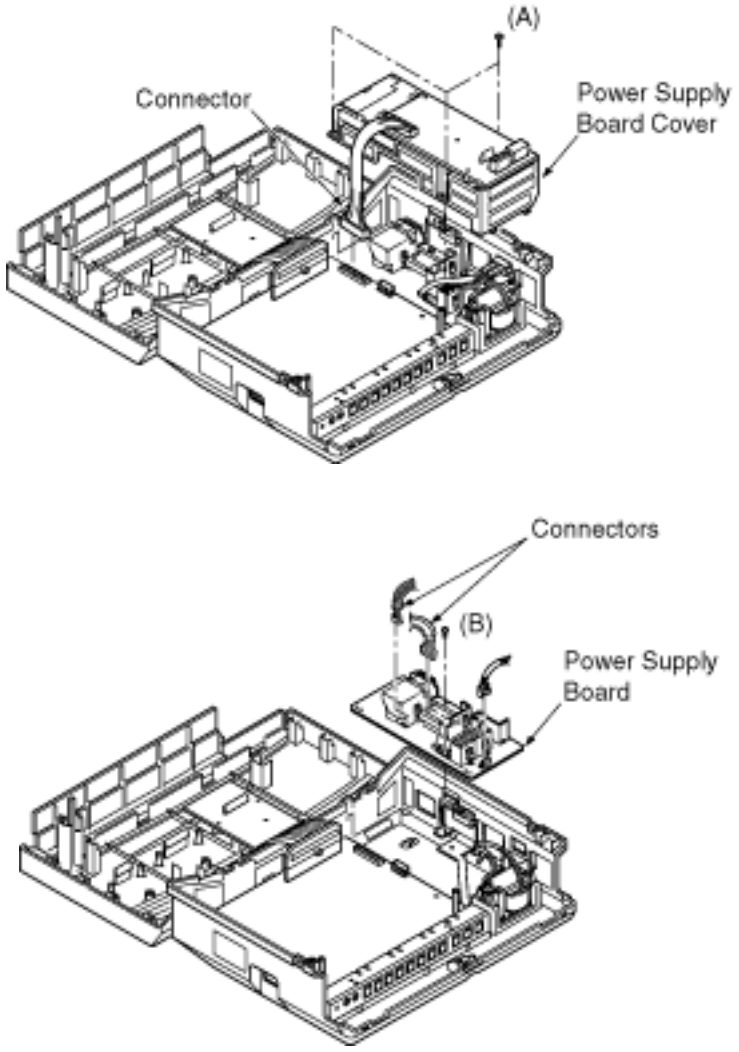
1. Loosen the screws (A).
2. Slide the Top Front Cover to the direction of the arrow while pressing the marked position.
3. Remove the 2 screws (B).
4. Open the Front Cover (45°).
5.Remove the Front Cover.



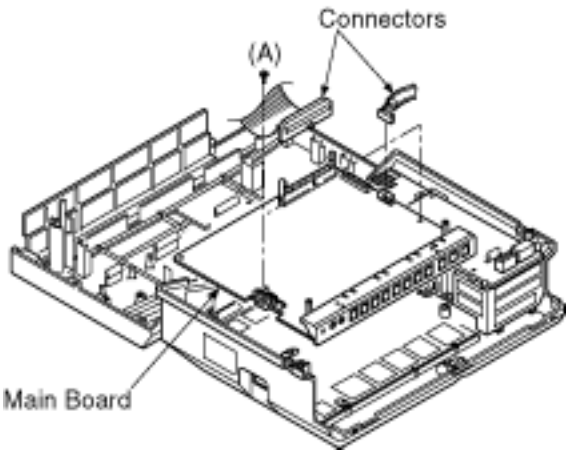


8.2 HOW TO REMOVE THE POWER SUPPLY BOARD

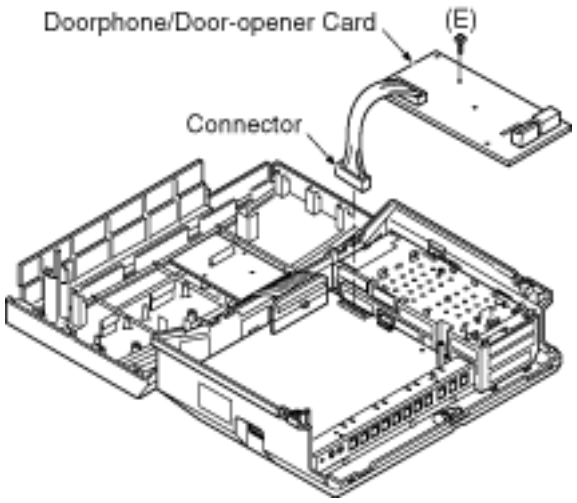
1. Open the Front Cover. (Refer to HOW TO REMOVE THE COVER No.1-3)
2. Remove the 3 screws (A).
3. Pull out the Connector.
4. Remove the Power SupplyBoard Cover.
5. Pull out the 3 Connectors.
6. Remove the 1 screw (B).
7. Remove the Power Supply Board.



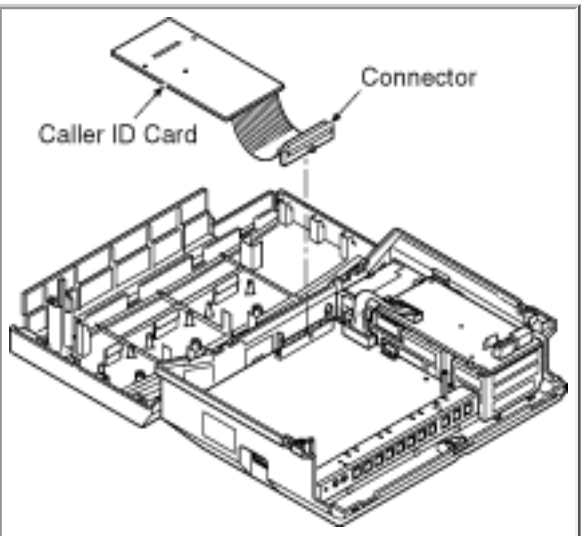
8.3 HOW TO REMOVE THE MAIN BOARD

1. Open the Front Cover. (Refer to HOW TO REMOVE THE COVER No.1-3) 2. Remove the 2 screws (A). 3. Pull out the 2 Connectors. 4. Remove the Main Board.	

8.4 HOW TO REMOVE THE DOORPHONE/DOOR-OPENER CARD

1. Open the Front Cover. (Refer to HOW TO REMOVE THE COVER No.1-3) 2. Remove the screw (E). 3. Pull out the Connector.	

8.5 HOW TO REMOVE THE CALLER ID CARD

1. Open the Front Cover. (Refer to HOW TO REMOVE THE COVER No.1-3) 2. Pull out the Connector.	

9 BLOCK DIAGRAM

TOP PREVIOUS NEXT

9.1 3 CO / 8 EXT (HYBRID) CARD

9.2 DOORPHONE / DOOR OPENER CARD

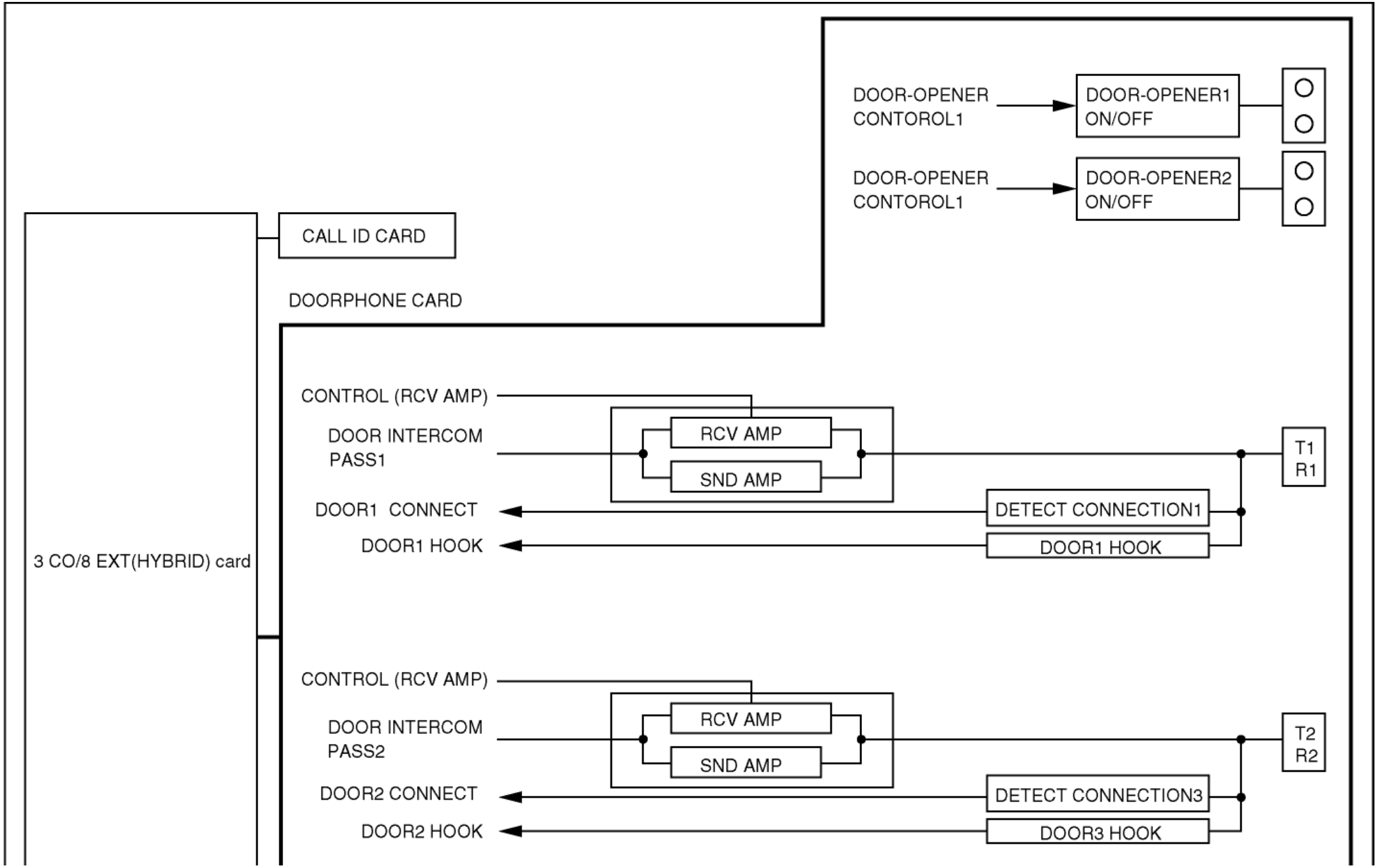
9.3 CALLER ID / VMM CARD

9.4 POWER UNIT

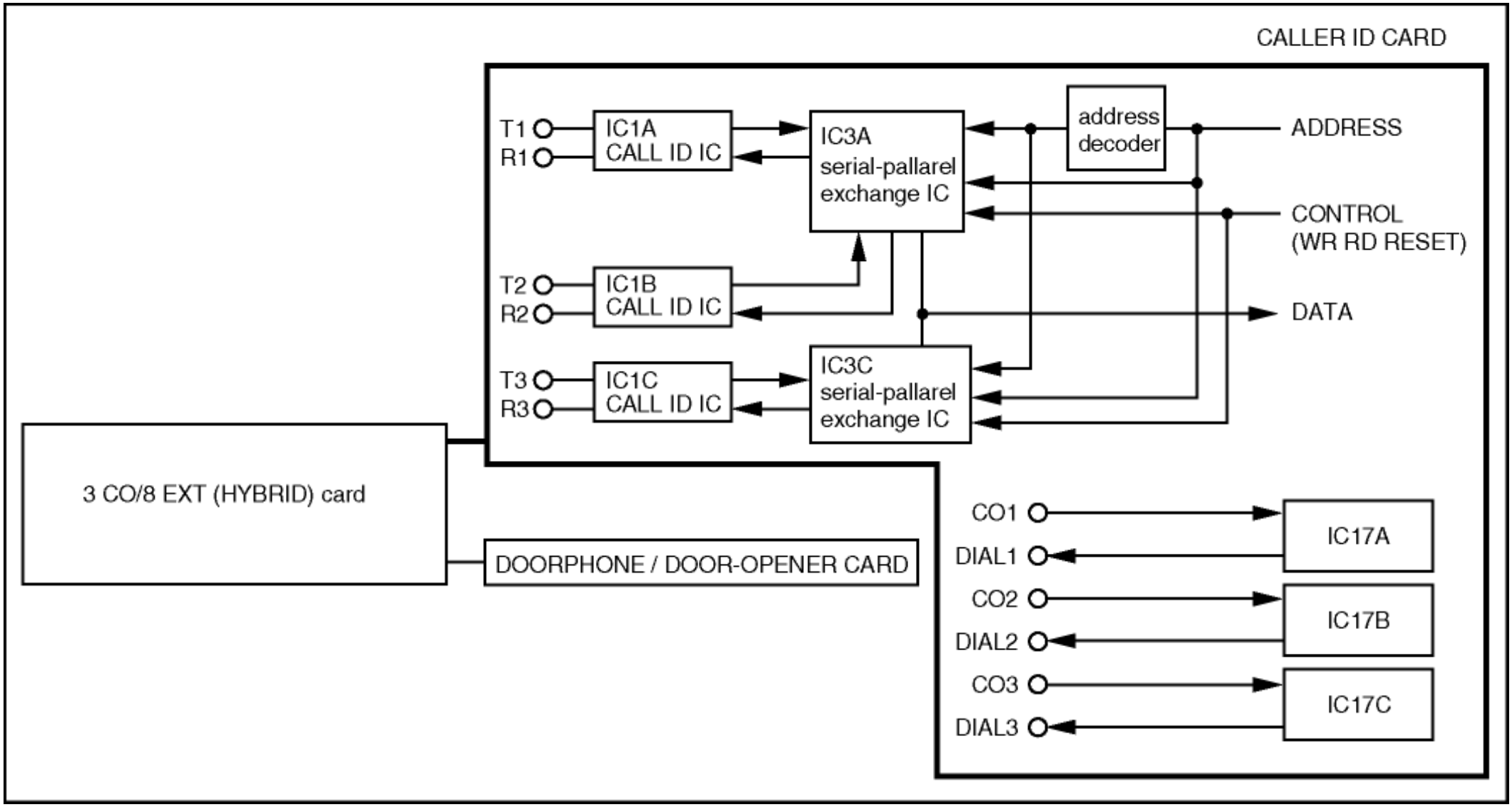
TOP PREVIOUS NEXT

9.1 3 CO/8 EXT (HYBRID) CARD

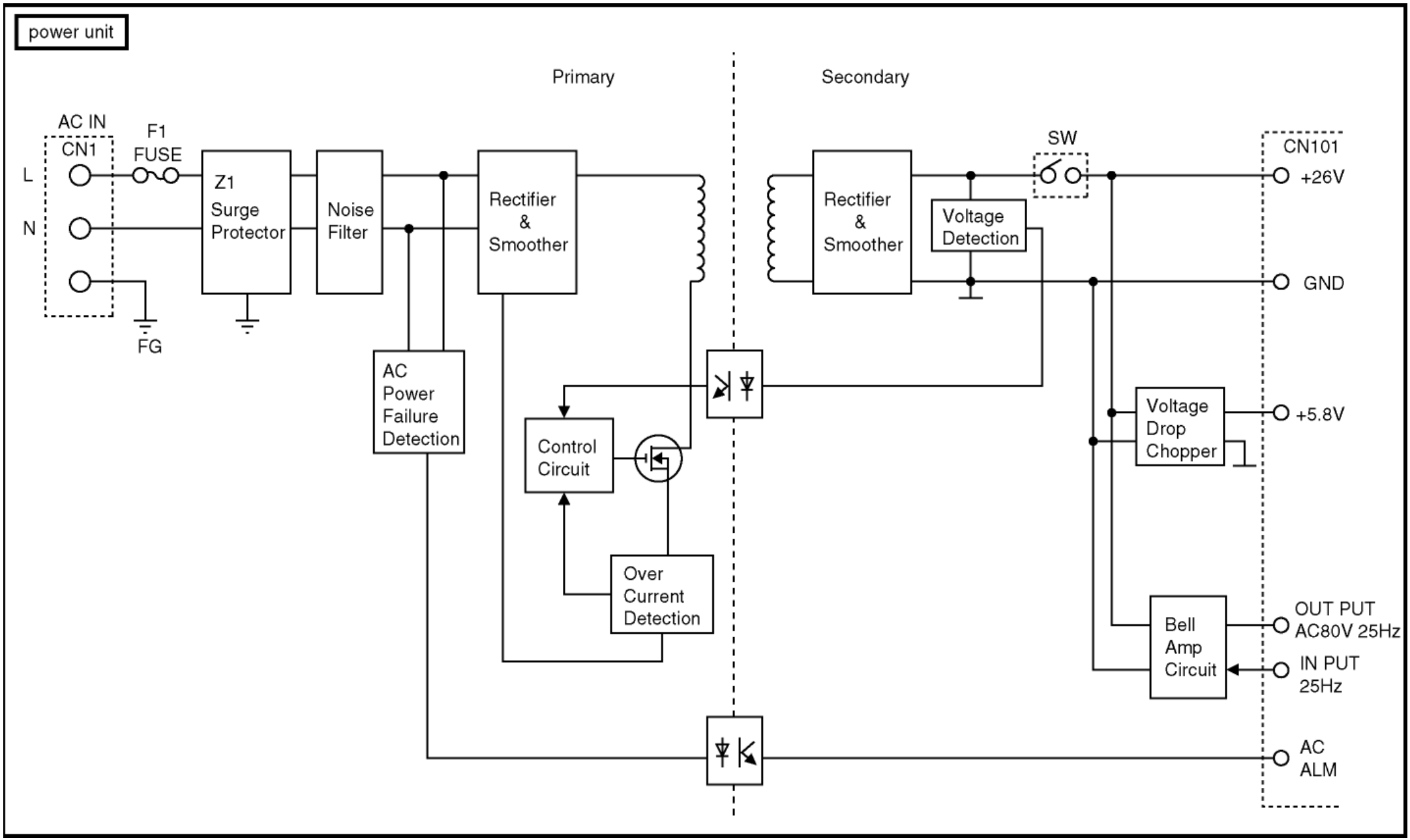
9.2 DOORPHONE/DOOR OPENER CARD



9.3 CALLER ID/VMM CARD



9.4 POWER UNIT



10 EXPLANATION OF BLOCK DIAGRAM

TOP PREVIOUS NEXT

10.1 MAIN UNIT

10.1.1 Power Supply Circuit

10.1.2 COL Interface Circuit

10.1.3 Cross Point Circuit

10.1.4 Intercom Circuit

10.1.5 Power Failure Through Call Switching Circuit

10.1.6 Data Communication Circuit

10.1.7 Control Circuit

10.1.8 Tone Generate Circuit

10.1.9 DTMF Generator Circuit

10.1.10 DTMF Receiver Circuit

10.1.11 Doorphone Interface Circuit

10.1.12 CALL ID Interface Circuit

10.1.13 Ringing Signal Generator Circuit

10.1.14 SMDR Interface Circuit

TOP PREVIOUS NEXT

10.1 MAIN UNIT

TOP PREVIOUS NEXT

10.1.1 Power Supply Circuit

10.1.2 COL Interface Circuit

10.1.3 Cross Point Circuit

10.1.4 Intercom Circuit

10.1.5 Power Failure Through Call Switching Circuit

10.1.6 Data Communication Circuit

10.1.7 Control Circuit

10.1.8 Tone Generate Circuit

10.1.9 DTMF Generator Circuit

10.1.10 DTMF Receiver Circuit

10.1.11 Doorphone Interface Circuit

10.1.12 CALL ID Interface Circuit

10.1.13 Ringing Signal Generator Circuit

10.1.14 SMDR Interface Circuit

TOP PREVIOUS NEXT

10.1.1 Power Supply Circuit

This power supply unit is a switching power supply. Power supply unit supplies DC voltage (+26V, +5.8V) to main board and other cards. And this unit has an adaptor circuit to back up battery. And this unit amplified thebell signal (a 20Hz sine wave outputted from the CPU) and supply bell signal to the telephone.

10.1.2 COL Interface Circuit

These are the interface circuits linking the CO line (CO1 ~ CO3) and the cross point circuit section.

10.1.3 Cross Point Circuit

TOP PREVIOUS NEXT

This is a space division switching system for connecting the followings:

The eight extension circuits with the three COLs, the extension channels, the DTMF receiver, paging circuit, tone, etc. It is composed of 3 C-MOS IC´s in 8X16 matrix:1pce and 4X8: 2pcs.

TOP PREVIOUS NEXT

10.1.4 Intercom Circuit

This is the interface circuit of the single line telephone, and it is composed of eight intercom circuits (ICM1 ~ 8).

10.1.5 Power Failure Through Call Switching Circuit

This unit have one power failure transfer circuit. (CO1 - EXT1)

10.1.6 Data Communication Circuit

This is composed of the 4bit CPU and EXT G / A for data communication control and extension on-hook, off-hook detection, bell relay control for extension. The data communication interface circuit is used for several intercom circuits,and for the data communication with the proprietary telephone.

10.1.7 Control Circuit

The control circuits execute the control signals for exchange process and action of I/O, and they are composed of the following:16 bit CPU, 4M ROM, 1M RAM, 4 bit CPU, EXT G/A, CO G/A, Decoder, address latch.

10.1.8 Tone Generate Circuit

This composed of the 16 bit CPU and the 4bit CPU and the low pass filter circuit (350Hz + 440Hz) and the low pass filter (620Hz).

10.1.9 DTMF Generator Circuit

This system has one DTMF generator. This generator is used for DTMF dialing from COL and voice mail integration.

10.1.10 DTMF Receiver Circuit

This section, which composed of two DTMF receiver IC´s demodulates the DTMF dial signal from the single line telephone. The two DTMF receiver IC´s also demodulates the DTMF dial signal from COL for DISA. The DTMF dial signalis received via the cross point switch, and is output to the 4 bit CPU as serial data.

10.1.11 Doorphone Interface Circuit

This interface composed of connectors for doorphone card and the 16 bit CPU and the crosspoint.

The 16 bit CPU controls dooropener SW and power supply sw for doorphone, connects doorphones.

The crosspoint controls EXT and doorphone pass.

10.1.12 CALL ID Interface Circuit

This system has three COL CALL ID interfaces. This interface composed of the connectors for CALL ID CARD and CO G/A address and data.

CALL ID CARD (CO1 ~ 3) communicate with the16 bit CPU by 8 bit data signals.

10.1.13 Ringing Signal Generator Circuit

This section generates the ringing signal for the single line telephone. A 20Hz square wave is generated by the 16 bit CPU and sent to a low pass filter and the ringing signal amplifier circuit and stepped by BELL transformer, and then passedit through the ringing signal switching relay to the single line telephone.

10.1.14 SMDR Interface Circuit

TOP PREVIOUS NEXT

This is the RS-232C interface port. When the port is connected to a printer, the port can be used to output the SMDR feature recording massages and the contents of the system program.

TOP PREVIOUS NEXT

11 CIRCUIT OPERATIONS

TOP PREVIOUS NEXT

11.1 POWER SUPPLY CIRCUIT

11.1.1 The Function Of The Power Unit Are Listed Below.

11.1.2 Control Section

11.2 CO INTERFACE CIRCUIT

11.2.1 Composition

11.3 CROSS POINT SWITCH CIRCUIT

11.3.1 Composition

11.4 INTERCOM CIRCUIT

11.4.1 Intercom Circuit

11.5 POWER FAILURE THROUGH CALL SWITCHING CIRCUIT

11.5.1 Circuit Operation

11.6 DATA COMMUNICATION CIRCUIT

11.6.1 Composition

11.6.2 Circuit Operation

11.7 CONTROL CIRCUIT

11.7.1 Composition

11.8 TONE GENERATOR CIRCUIT

11.8.1 Composition

11.9 DTMF GENERATOR CIRCUIT

11.9.1 Composition

11.10 DTMF RECEIVER CIRCUIT

11.10.1 Composition

11.11 DOORPHONE INTERFACE CIRCUIT

11.12 CALL ID INTERFACE CIRCUIT

11.13 RINGING SIGNAL GENERATOR CIRCUIT

11.14 SMDR INTERFACE CIRCUIT

11.1 POWER SUPPLY CIRCUIT

TOP PREVIOUS NEXT

11.1.1 The Function Of The Power Unit Are Listed Below.

11.1.2 Control Section

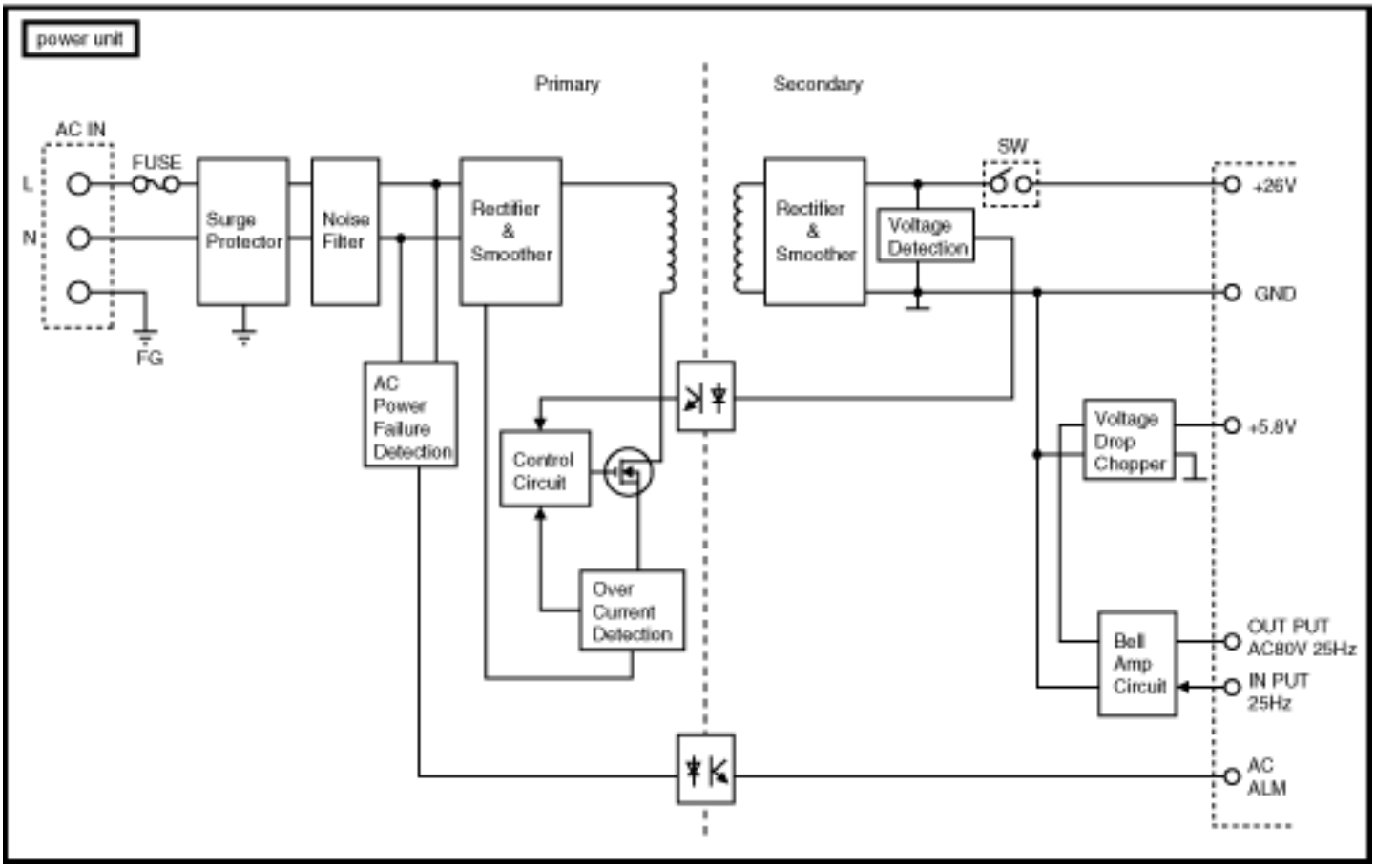
TOP PREVIOUS NEXT

11.1.1 The Function Of The Power Unit Are Listed Below.

TOP PREVIOUS NEXT

Function	Description
DC voltage generation function	This function generates two DC voltages (+26V, +5.8V) from the AC power supply and supplies system.
Ringing signal output function	Based on the 20Hz sine wave signal output from KX-TA308, this function generates ringing and supplies it to the system.
AC cutoff detection function	This function detects any cut off of the AC power supply and outputs an AC alarm signal to the CPU.

Block Diagram



TOP PREVIOUS NEXT

11.1.2 Control Section

1) DC voltage generation circuit

a) Switching section

The switching frequency is 80kHz. Q1 is PWM-controlled by IC1 in order to regulate the output voltage.

Secondary voltage detection is performed by R113, R114 and VR101, and changes in the secondary voltage with respect to the base voltage of Q101 are isolated by photocoupler PC1 and sent to IC1.

b) Secondary circuit

At first, it produces +26V DC voltage. And it produces +5V DC voltage from voltage drop chopper circuit.

2) Ringing signal output function

Ringing signal (20Hz, 8Vac from main board) is amplified in power by power amplifier circuits (including of IC301, IC304, R301-307, C301-303 and D301).

Ringing signal amplified in power is transmitted to the ringing transformer through pin 7 of CN101.

3) AC cut off detection function

AC power failure is detected by R31 - R36, R38, D31 - 34, C31 and PC2.

When AC power is on, pin 4 of PC4 is high.

When AC power is turned off, pin 4 of PC2 changes to low.

11.2 CO INTERFACE CIRCUIT

TOP PREVIOUS NEXT

11.2.1 Composition

TOP PREVIOUS NEXT

11.2.1 Composition

This is composed of the following circuits:

1) Bell signal detection

2) DC loop formation circuit

3) Pulse dial transmission circuit

4) COL bidirectional amplifier circuit

1) Bell signal detection

When CO line is idle, photocoupler PC200, PC201 are OFF.

When there is an incoming signal from the CO line, the current flows PC200, PC201 as in the following way.

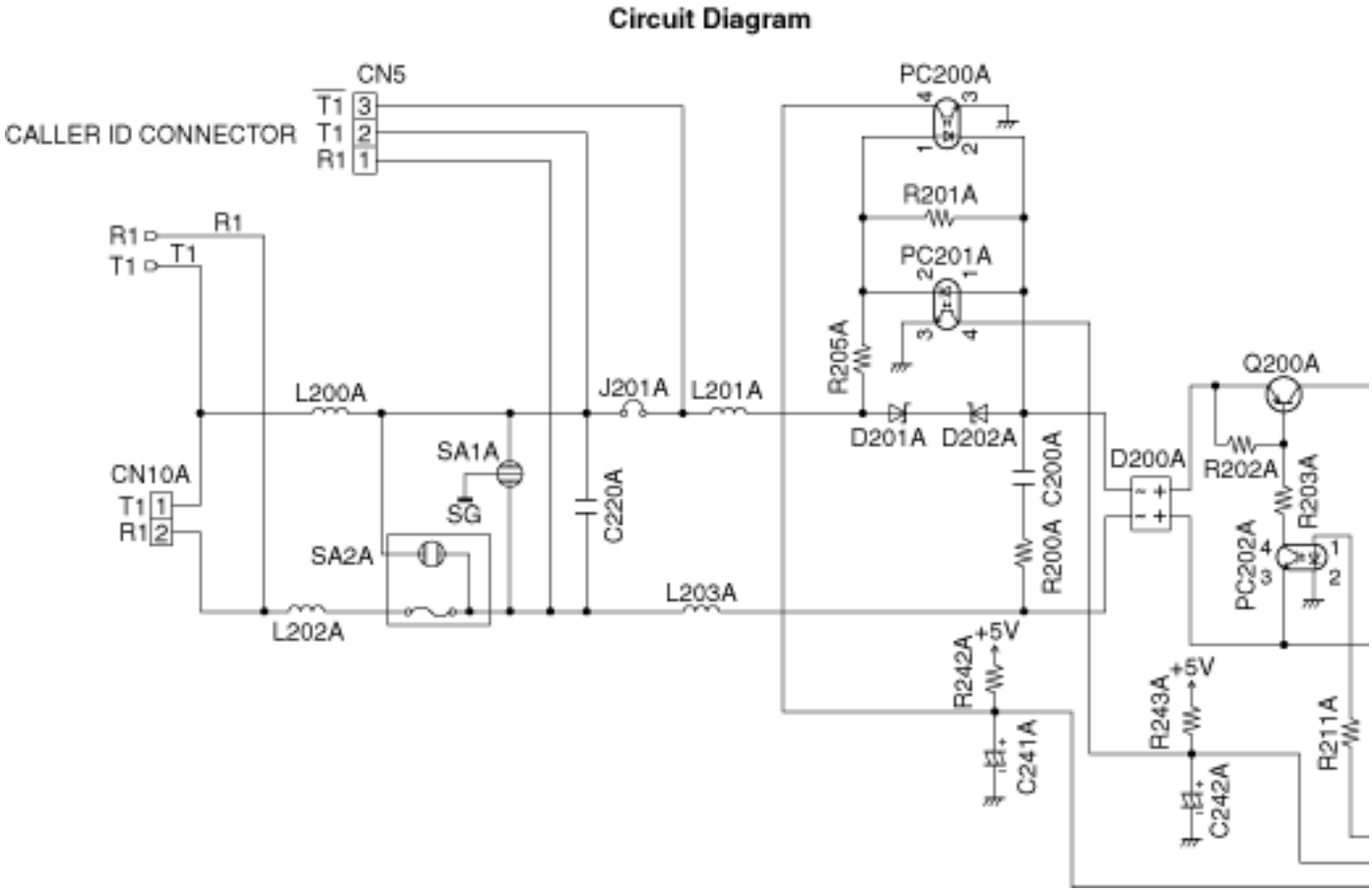
Tip→L200→J201→L201→R205→PC200(1-2)→C200→R200→L203→J200→L202→Ring

and thus this causes pin4 of PC200 to change the level from high to low.

Ring→L202→J200→L203→R200→C200→PC201(1-2)→R205→L201→J201→L200→Tip

and thus this causes pin4 of PC201 to change the level from high to low.

This change is detected as incoming call, thus call processing is executed.



2) DC loop formation circuit

In the off-hook status, PC202 is ON.

DC loop path:

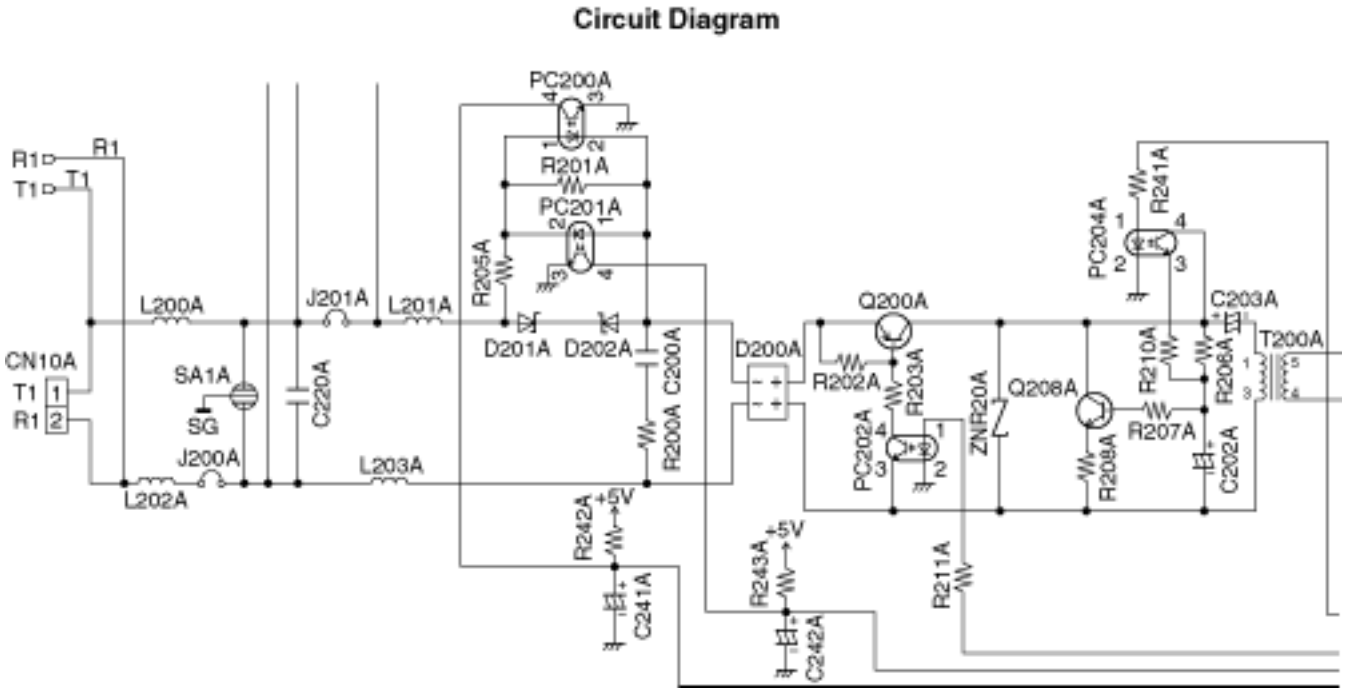
Tip→L200→J201→L20→D201→D202→D200→Q200(E-C)→Q208(C-E)→R208→D200→L203→J200→L202→Ring

At this time, the output of the photocoupler PC200 change the level from high to low.

Ring→L202→J200→L203→D200→Q200(E-C)→Q208(C-E)→R208→D200→D202→D201→L201→J201→L200→Tip

At this time, the output of the photocoupler PC201 change the level from high to low.

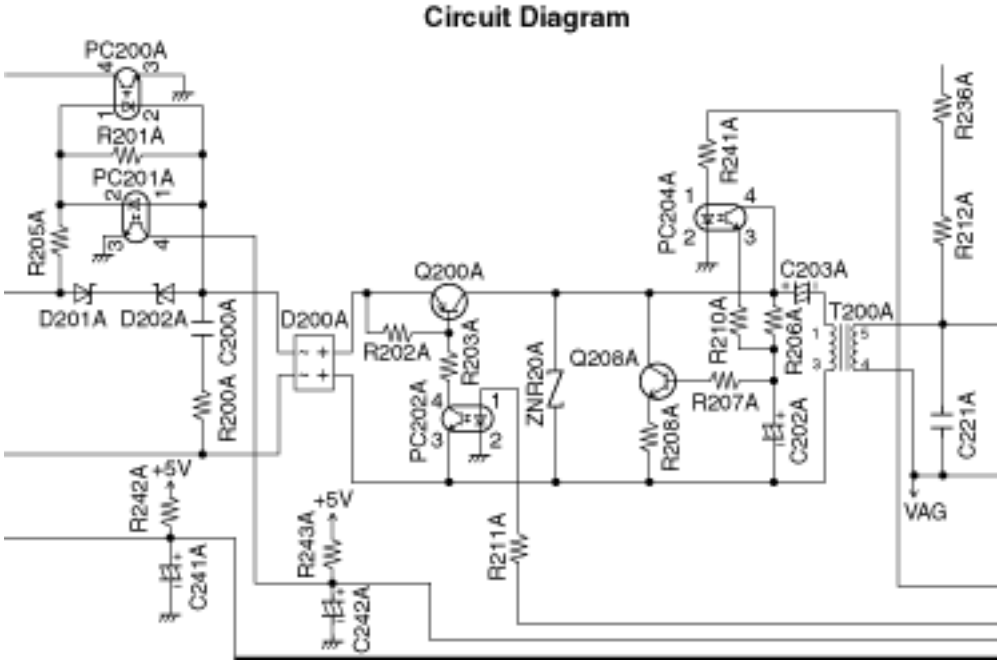
Afterwards, G/A monitors this change (low level to high level). If the high level continues for a specified time set by system data programming, G/A assumes that CO line has became On-Hook status. And the CO line circuits is restoredto the idle status.



3) Pulse dial transmission circuit

When the Off-Hook status, pulse dial transmission is executed by alternating On-Hook and Off-Hook. The status of On-Hook or Off-Hook is controlled by the switching transistor Q200.

During the make-position, "DL" port of IC205 (G/A) is high level and Q200 is ON. At the break position, "DL" port of IC205 is low level.



4) COL Bidirectional Amplifier circuit

This circuit consists of a bidirectional amplifier function for communication between the extensions and COL, returns loss compensation for conference, shunt function and mute function.

(Composition)

For transmitting signals from the extensions to COL, this circuit consists of R227, R228, R229, R220, R260, R261, C210,C211, C212, C223 and the operational amplifier (IC200).

For transmitting signals from COL to the extensions, the circuit consists of R215, R217, R218, R219, R262, R263, C205, C206, C207, C224 and the operational amplifier (IC200).

COL side-tone suppression circuit which includes a balanced network BN1 consists of R214, R215, C204 and R212, R213, R236, R237.

EXT side-tone suppression circuit which includes a balanced network BN2 consists of R222, R224 and R221, R226, R238, R239.

Also extension side-tone suppression circuit which includes a balanced network BN3 consists of R223, R225 for supplementing side-tone suppression during the conference communication.

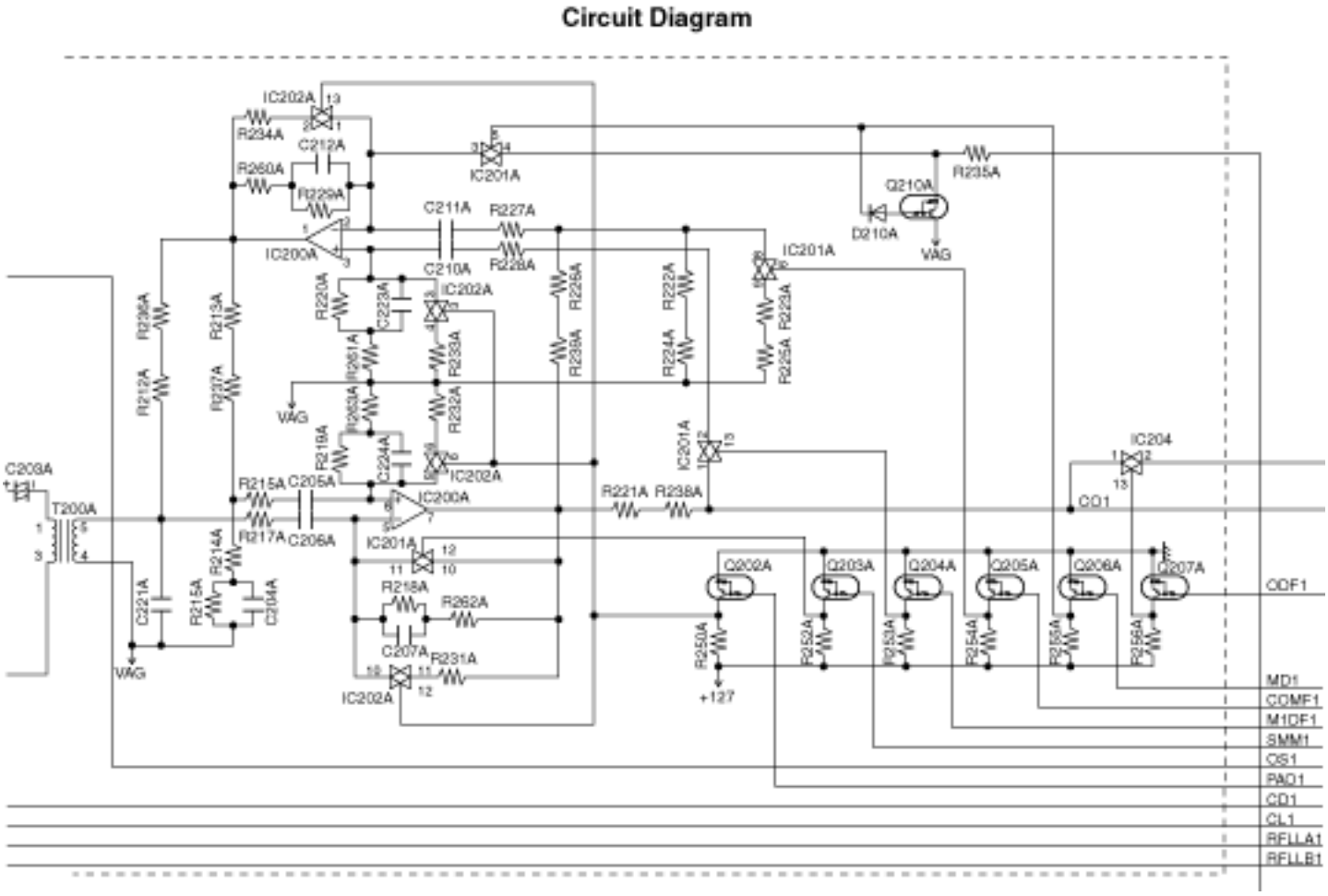
The analog switch (IC201) is used for the following:

(1) Conference (pin 6, 8 and 9)

(2) Shunt (pin12, 10 and 11)

(3) Mute (pin13, 1 and 2)

(4) Hold on music transmission circuit (pin 5, 3 and 4)



(1) conference switch

Normally, pin 6 of the analog switch IC201 is low level, but during conferences, this pin becomes high level. Because, during conferences, it should compensate the return loss by connecting the balance network BN2 and the balance network BN3 inparallel.

(2) Mute switch

The mute switch consists of pin 13, 1 and 2 of the analog switch (IC201). This switch has the following functions.

a) When a dial signal (DP) is sent to the COL, signals from the extensions are blocked.

b) When the hold on music is sent to the COL, signals from the extensions are blocked.

c) When the COL interface circuit is in the idle state, oscillation of COL bidirectional amplifier is inhibited. When pin 13 of IC201 changes to low level, the interval between pins 1 and 2 of the analog switch turns off, and signals are blocked.

(3) Shunt switch

The shunt switch consists of pin 12, 10 and 11 of analog switch IC201.

It is used to prevent the pulse dialling signal which is transmitted to the extensions. When pin 12 of IC201 changes to high from low, the analog switch becomes ON (the interval between pin 10 and 11), and GAIN of the COL cross point operationalamplifier becomes zero.

(4) Hold on music transmission circuit

When the COL is in the hold status, the interval between pin 3 and 4 of the analog switch IC201 turns ON. Either external music source or internal music source supplies the hold on music through the analog switch.

Condition of COL interface amplifier circuit and analog switches

	Hold on music SW	Shunt SW	Mute SW	Conference SW
Pin no. of analog switch	5	12	13	6
No connection (idle)	L (off)	H (on)	L (off)	L (off)
Two party call	L (off)	L (off)	H (on)	L (off)
Conference	L (off)	L (off)	H (on)	H (on)
Hold on music transmission	H (on)	L (off)	H (on)	L (off)

TOP PREVIOUS NEXT

11.3 CROSS POINT SWITCH CIRCUIT

TOP PREVIOUS NEXT

11.3.1 Composition

TOP PREVIOUS NEXT

11.3.1 Composition

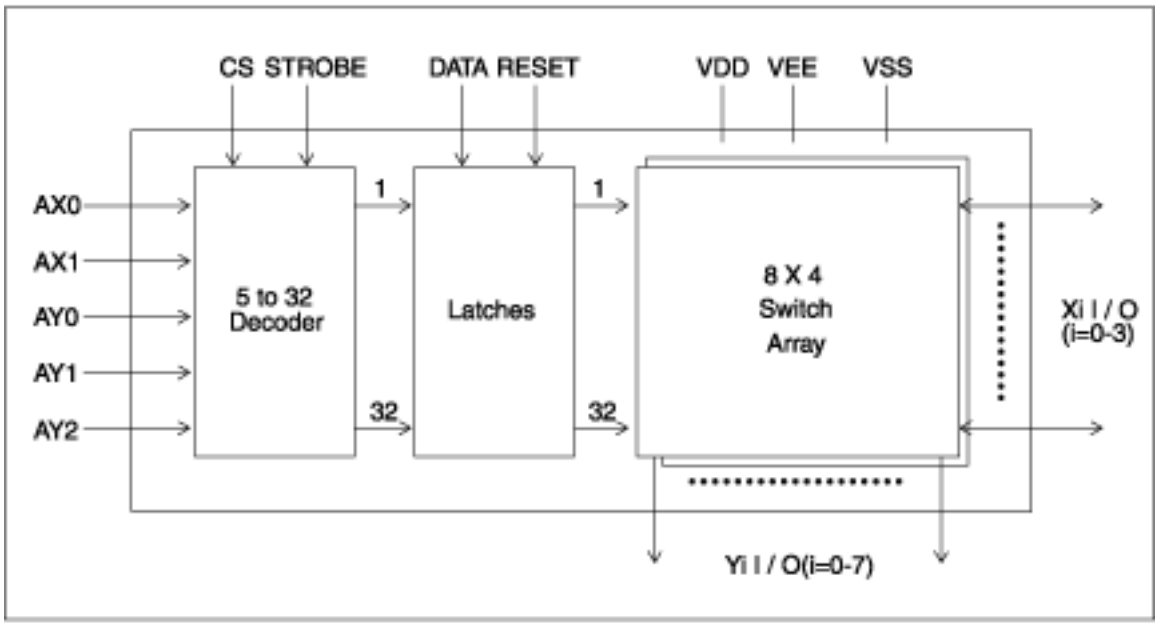
The cross point circuit composed of three crosspoint switch IC´s (IC500: 8X16, IC501 and IC502: 4X8).

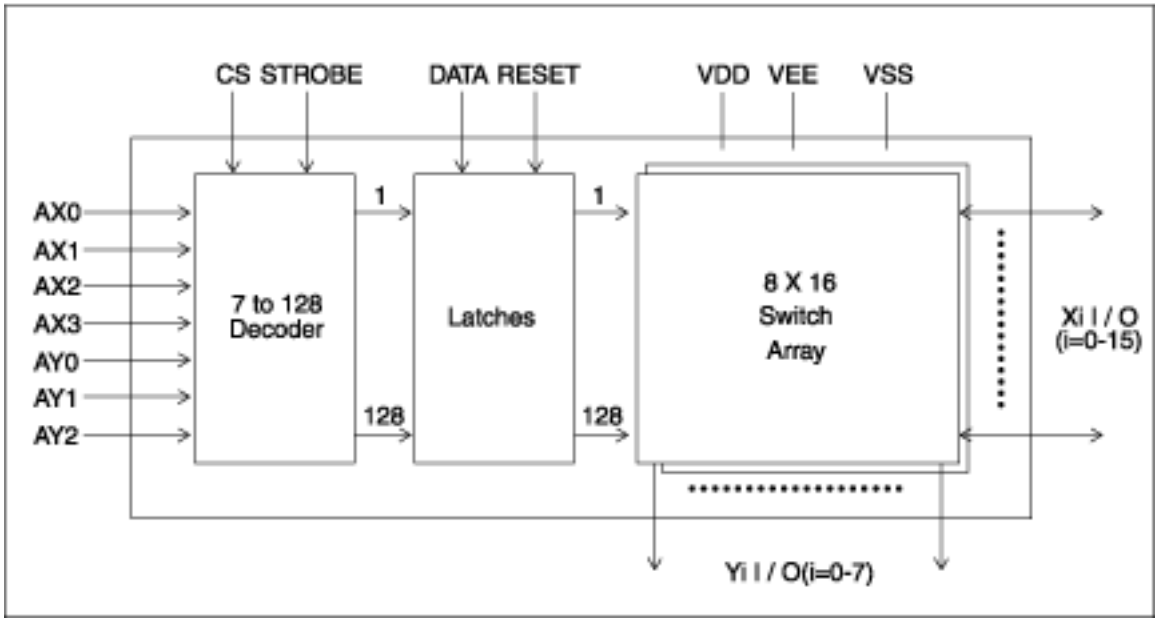
1) Cross Point Switch IC Operation

The cross point SW (IC500) contains a 8X16 array of crosspoint switches along with a 7 to 128 line decorder and latch circuits. Any one of the 128 switches can be addressed by selecting appropriate seven address bits. The selected switch can beturned on or off by applying either logical one or zero to the DATA input. Chip select allows the crosspoint array to be cascaded for matrix expansion.

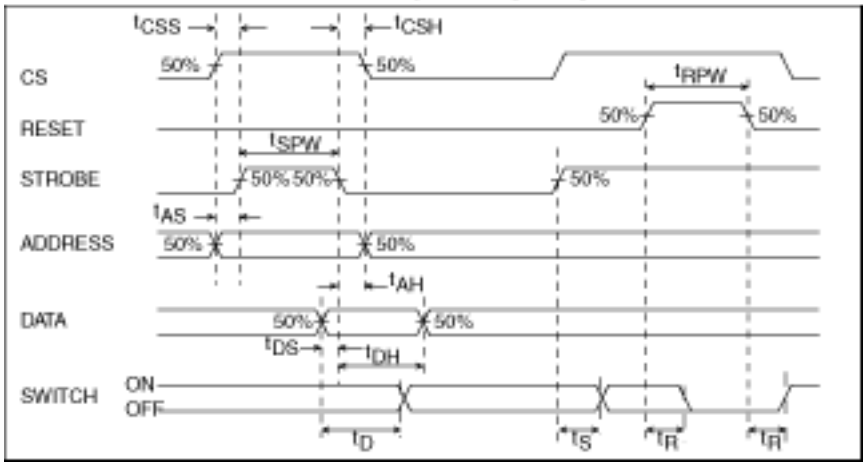
The cross point SWs (IC501, IC502) contain 4X8 array of crosspoint switches along with a 5 to 32 line decorder and latch circuits. Any one of the 32 switches can be addressed by selecting appropriate five address bits. The selected switch can be turnedon or off by applying either logical one or zero to the DATA input. Chip select allows the crosspoint array to be cascaded for matrix expansion.

Functional Block Diagram





Control Memory Timing Diagram



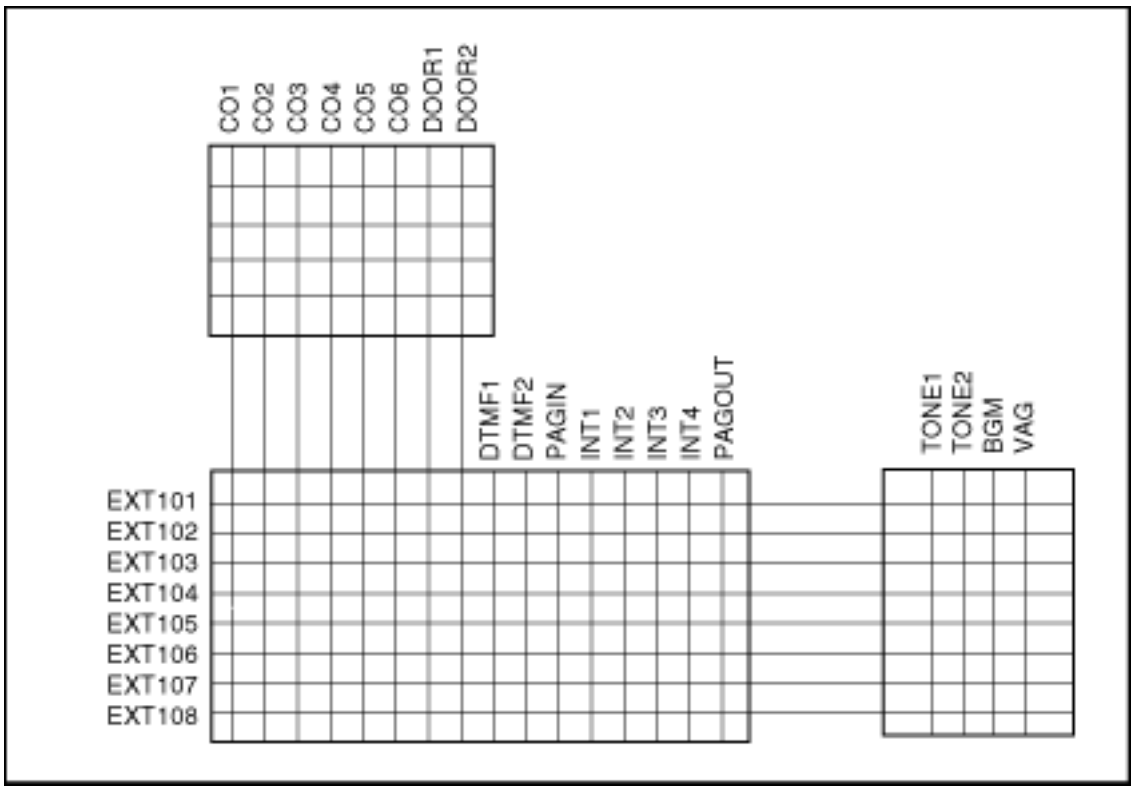
Address Decode Truth Table

AX0	AX1	AY0	AY1	AY2	Connection
0	0	0	0	0	X0-Y0
0	0	1	0	0	X0-Y1
0	0	0	1	0	X0-Y2
0	0	1	1	0	X0-Y3
0	0	0	0	1	X0-Y4
0	0	1	0	1	X0-Y5
0	0	0	1	1	X0-Y6
0	0	1	1	1	X0-Y7
1 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	X1-Y0 ↓↓ X1-Y7
0 ↓ 0	1 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	X2-Y0 ↓↓ X2-Y7
1 ↓ 1	1 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	X3-Y0 ↓↓ X3-Y7

AX0	AX1	AX2	AX3	AY0	AY1	AY2	Connection
0	0	0	0	0	0	0	X0-Y0
1	0	0	0	0	0	0	X1-Y0
0	1	0	0	0	0	0	X2-Y0
1	1	0	0	0	0	0	X3-Y0
0	0	1	0	0	0	0	X4-Y0
1	0	1	0	0	0	0	X5-Y0
0	1	1	0	0	0	0	X12-Y0
1	1	1	0	0	0	0	X13-Y0
0	0	0	1	0	0	0	X6-Y0
1	0	0	1	0	0	0	X7-Y0
0	1	0	1	0	0	0	X8-Y0
1	1	0	1	0	0	0	X9-Y0
0	0	1	1	0	0	0	X10-Y0
1	0	1	1	0	0	0	X11-Y0
0	1	1	1	0	0	0	X14-Y0
1	1	1	1	0	0	0	X15-Y0
0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	1 ↓ 1	0 ↓ 0	0 ↓ 0	X0-Y1 ↓↓ X15-Y1
0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 0	1 ↓ 1	0 ↓ 0	X0-Y2 ↓↓ X15-Y2
0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 0	0 ↓ 0	1 ↓ 1	X0-Y3 ↓↓ X15-Y3
0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	1 ↓ 1	0 ↓ 0	0 ↓ 0	X0-Y4 ↓↓ X15-Y4
0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	1 ↓ 1	0 ↓ 0	1 ↓ 1	X0-Y5 ↓↓ X15-Y5

0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 0	1 ↓ 1	1 ↓ 1	X0-Y6 ↓↓ X15-Y6
0 ↓ 1	0 ↓ 1	0 ↓ 1	0 ↓ 1	1 ↓ 1	1 ↓ 1	1 ↓ 1	X0-Y7 ↓↓ X15-Y7

Crosspoint Matrix



TOP PREVIOUS NEXT

11.4 INTERCOM CIRCUIT

11.4.1 Intercom Circuit

11.4.1 Intercom Circuit

1) Composition

This is composed of the following circuits:

a) 26V power source for the extension telephones

b) Hook detect for SLT and pulse dialing detect

c) Bell ringing section

2) Circuit Operation

a) Power supply to the telephone

With the telephone off hook, a DC loop is formed, and current is supplied to the telephone.

This circuit is limited to about 25mA by Q301, R303, D303 and Q304, R301, D302.

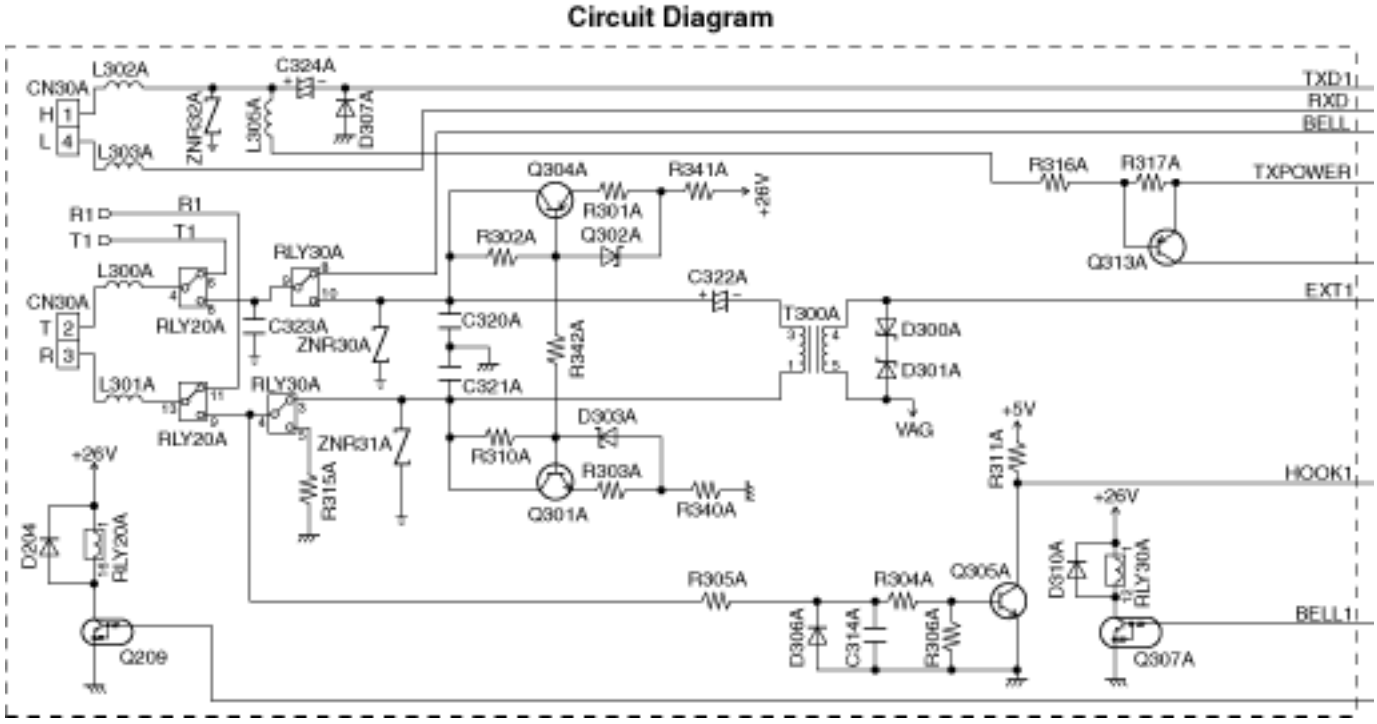
+26V→R341→R301→Q304→RLY30→L300→telephone→L301→RLY30→Q301→R303→R340→GND

b) Hook detect for SLT and pulse dialing detect

When the telephone handset is taken off, DC loop is formed and collector of Q305 change to L from H. And EXT G/A detect off hook condition.

When the handset is replaced back on hook, the DC loop is interrupted and collector of Q305 change to H from L. And EXT G/A detect on hook condition.

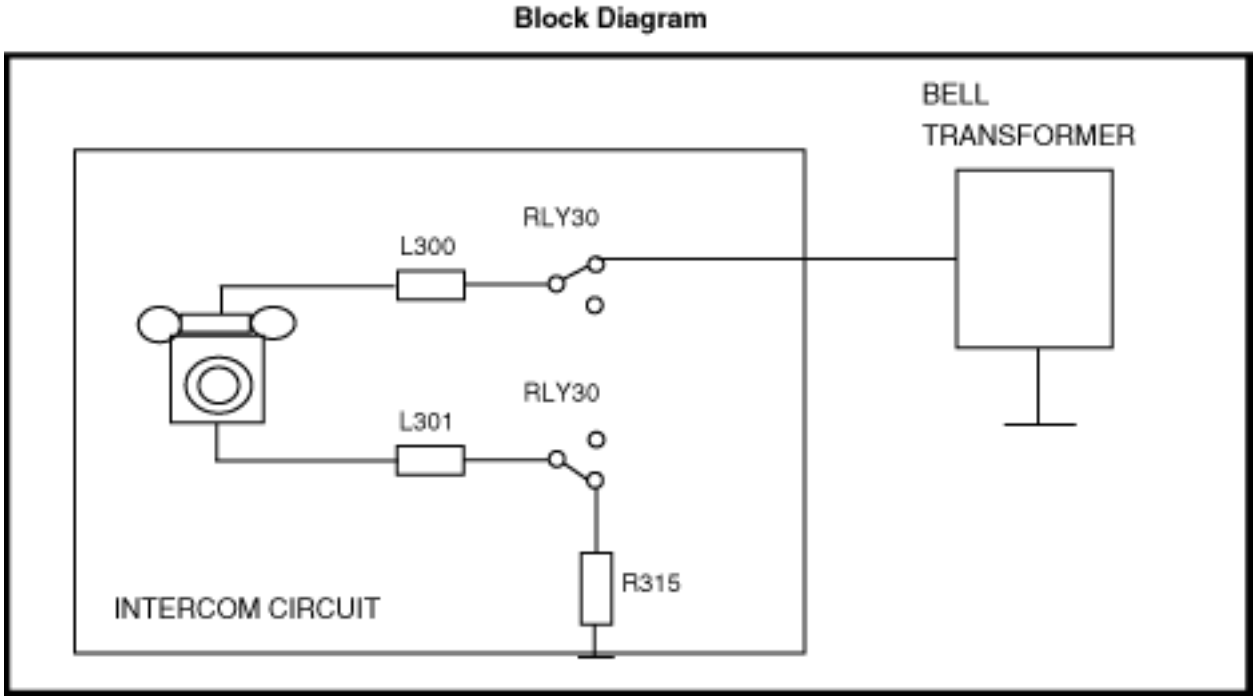
Pulse dialing is a input either in the on hook or off hook condition, and the break number (on hook condition) is counted and read as the dial number.



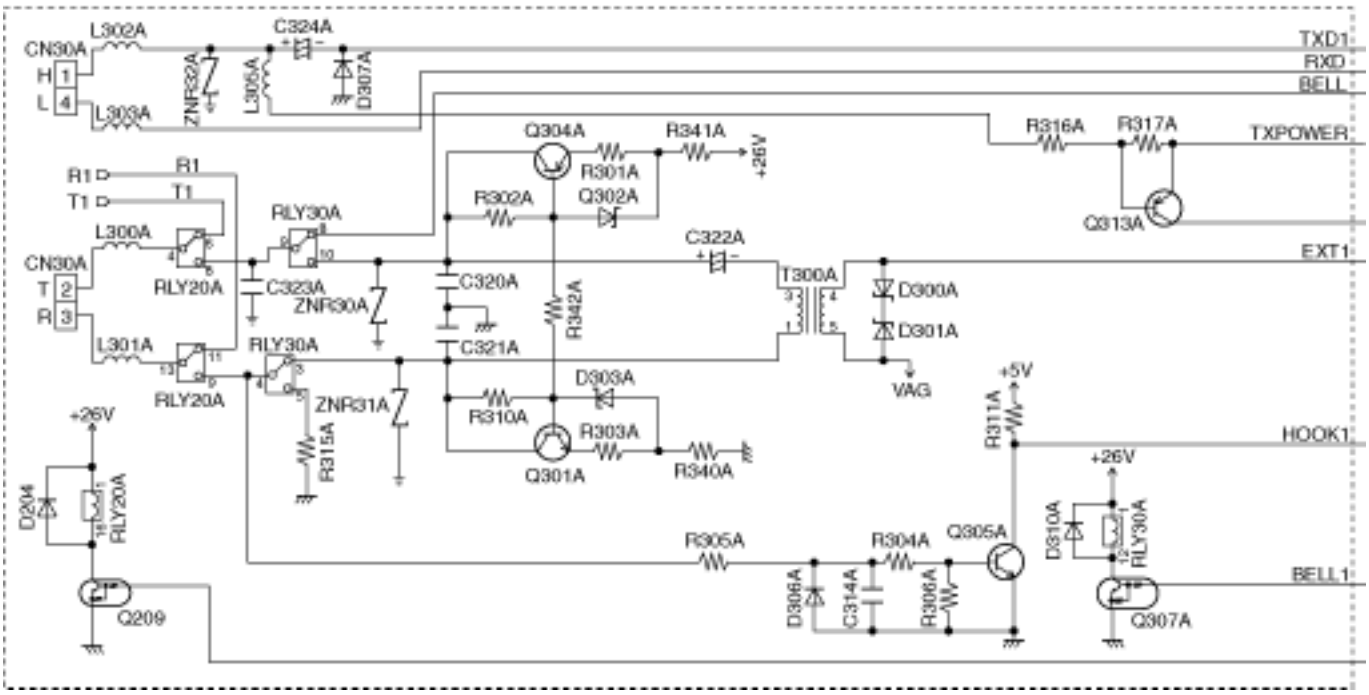
c) Bell ringing section

When the telephone is a signal line telephone, extension calling is executed by means of a ringing signal. When the ringing signal is supplied, RLY30 turns ON and the current flows are as follows:

Bell transformer→ringing signal line→RLY30→L300→telephone→L301→R315→GND→Bell transformer



Circuit Diagram



TOP PREVIOUS NEXT

11.5 POWER FAILURE THROUGH CALL SWITCHING CIRCUIT

TOP PREVIOUS NEXT

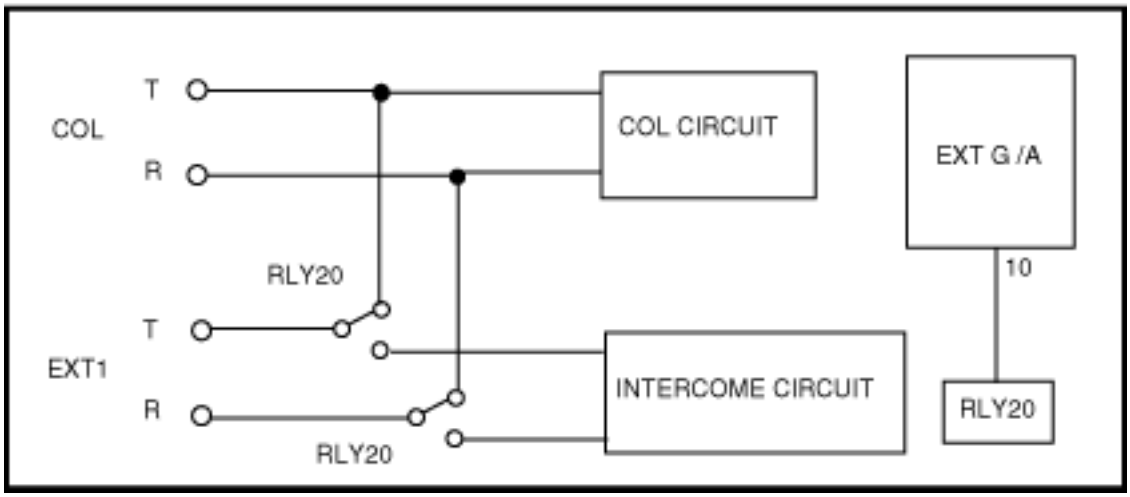
11.5.1 Circuit Operation

TOP PREVIOUS NEXT

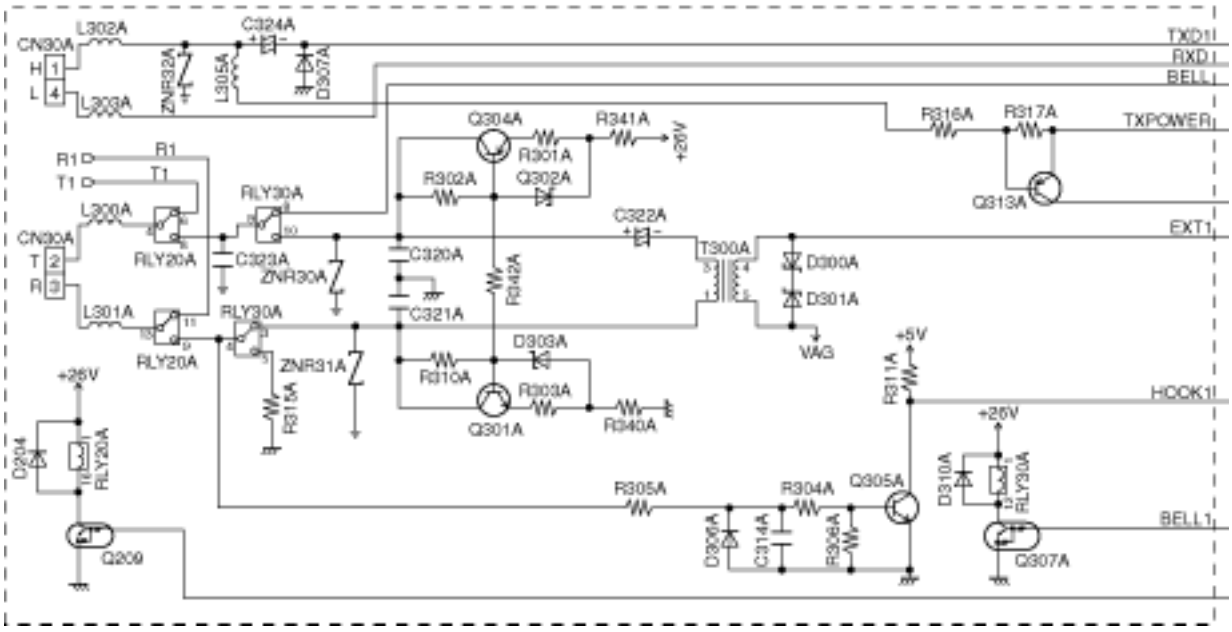
11.5.1 Circuit Operation

If an AC power failure lasts longer than one second (momentary power failure), the COL is directly connected to the extension. The COL1 will be connected with EXT1.

Block Diagram



Circuit Diagram



11.6 DATA COMMUNICATION CIRCUIT

TOP PREVIOUS NEXT

11.6.1 Composition

11.6.2 Circuit Operation

TOP PREVIOUS NEXT

11.6.1 Composition

This circuit is composed of the 4bit CPU and EXT G/A and the data communication interface circuits for the ICM circuit (ICM1-16).

11.6.2 Circuit Operation

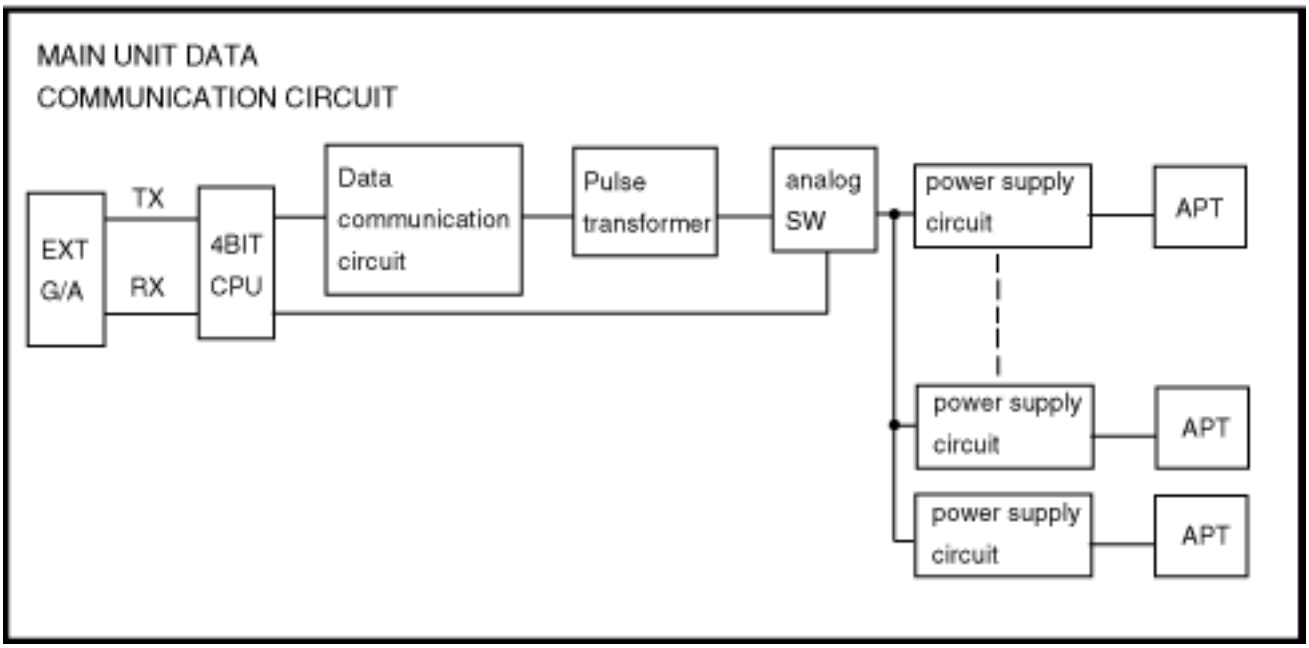
1) Data Communication of G/A and 4bit CPU

The 4bit CPU is able to control 16 port data communications of ICM1 ~ 8 and ICM9 ~ 16.

The communication method is serial communication. One serial data controls ICM1 ~ 8 and the other one controls ICM9 ~ 16.

These serial data are divided after they run through the data communication circuits. These eight data communicate with APT which are connected to the extension ports.

Block Diagram



2) Data Communication of 4bit CPU and PITS

When 4bit CPU send the request signal to the proprietary telephone and after receiving the key input information (19 pulses) from the proprietary telephone and sending data (47 pulses) for LED control. 4bit CPU will receive acknowledge signal fromthe proprietary telephone.

a) Reception

The data from the proprietary telephone is received via H and L lines along the path shown below.

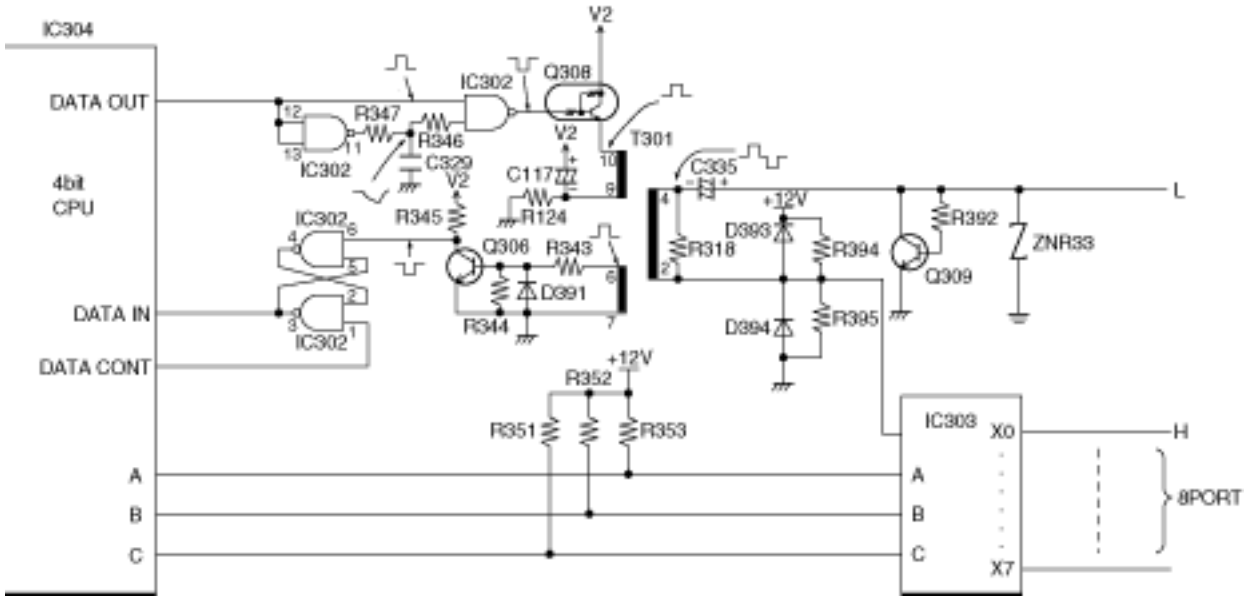
H.L line→IC303→T301→R343→Q306→IC302→IC304

b) Transmission

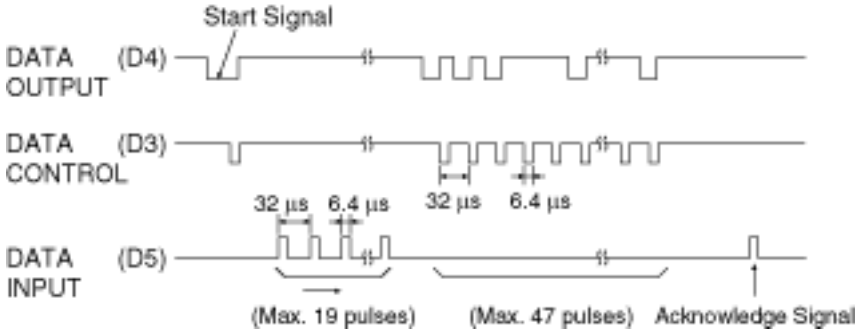
The data to the EMSS is transmitted along the following Path.

IC304→IC302→Q308→T301→IC303→H.L line

Circuit Diagram



Timing Chart



OUTPUT	Select		
	A	B	C
X0	0	0	0
X1	1	0	0
X2	0	1	0
X3	1	1	0
X4	0	0	1
X5	1	0	1
X6	0	1	1
X7	1	1	1

TOP PREVIOUS NEXT

11.7 CONTROL CIRCUIT

TOP PREVIOUS NEXT

11.7.1 Composition

TOP PREVIOUS NEXT

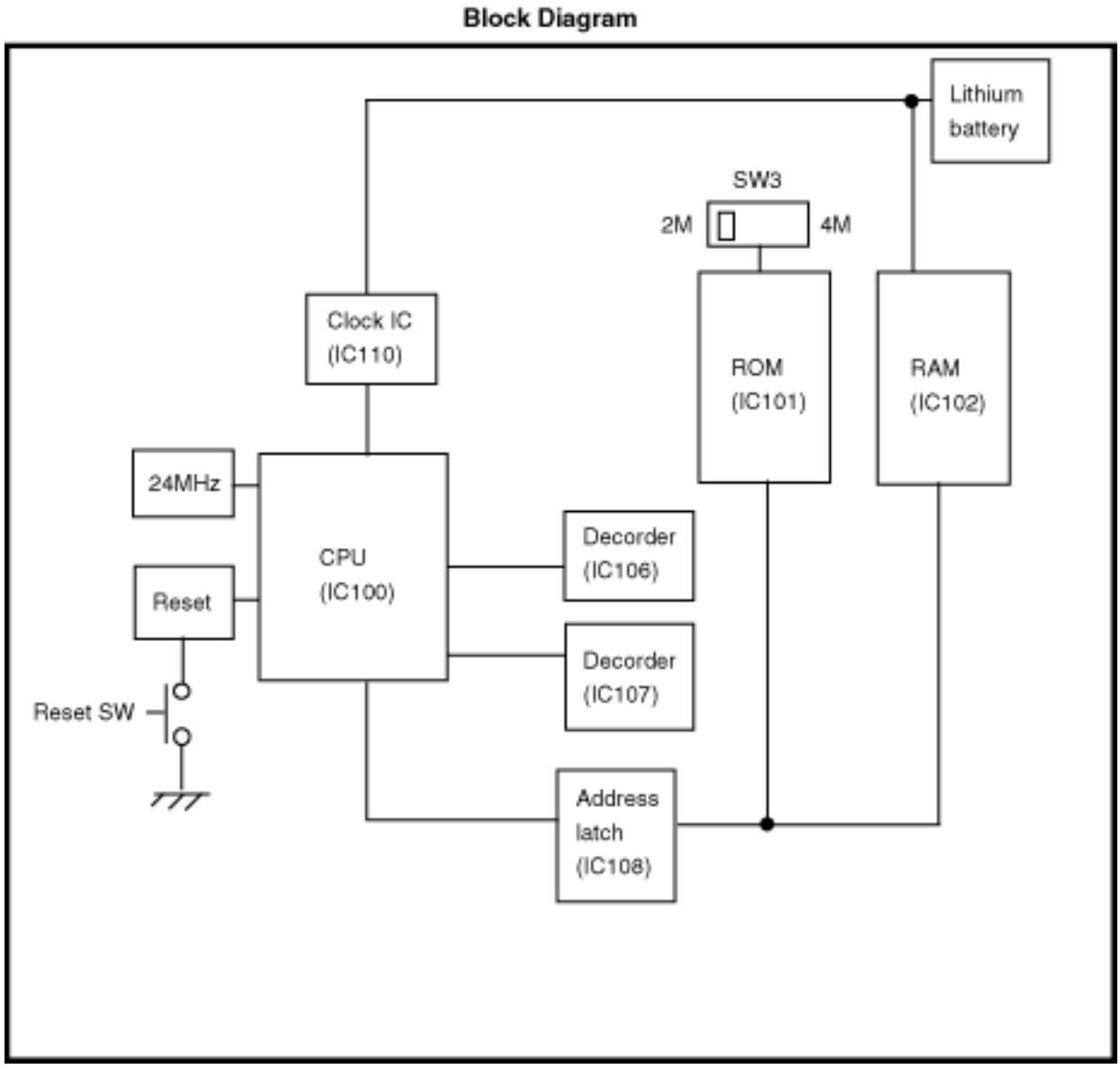
11.7.1 Composition

TOP PREVIOUS NEXT

The control circuit is composed of the 16 bit CPU (IC100) (operating on a 12MHz system clock obtained by frequency division on the 24MHz from the external crystal oscillator), the 4M ERROM (IC101), the 1M C-MOS RAM (IC102), decorders(IC106, 107), the address latch (IC108) and the clock IC (IC110).

The C-MOS RAM has a lithium battery as back up for protection of the memory of information of such as the speed dial, date, auto dial data, system data. etc.

Also, this system has ROM SW3 that enables to use the 2M ROM or the 4M ROM.



TOP PREVIOUS NEXT

11.8 TONE GENERATOR CIRCUIT

TOP PREVIOUS NEXT

11.8.1 Composition

TOP PREVIOUS NEXT

11.8.1 Composition

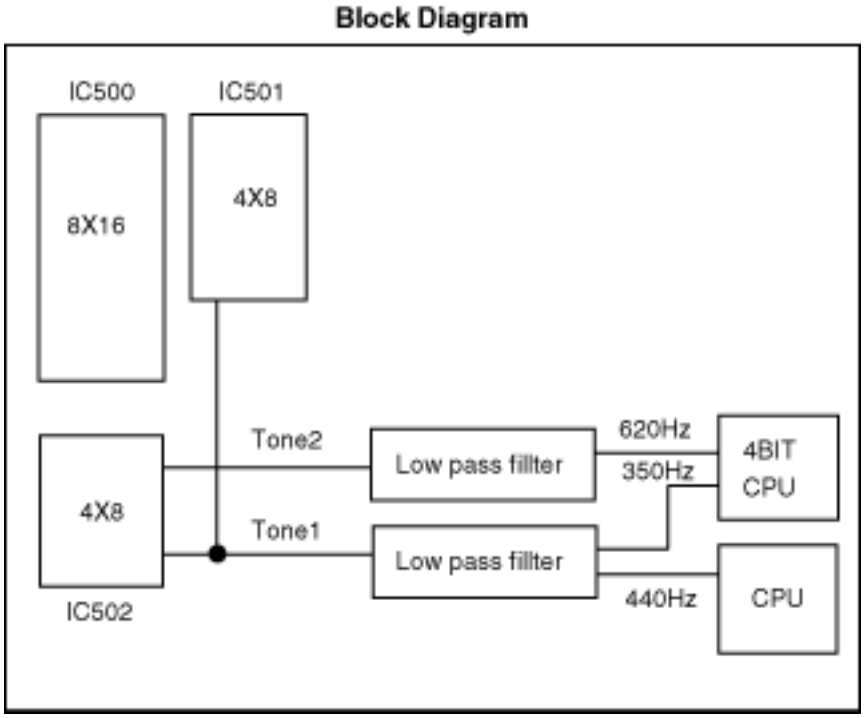
This system has three different tones, 620Hz, 440Hz, 350Hz.

The 4bit CPU supplies the 350Hz and 620Hz square wave signals. The Main CPU supplies the 440Hz square wave signal.

The 350Hz and 440Hz square wave signals are shaped by the low pass filter to sine wave and become tone 1.

On the other hand, 620Hz square wave signal is shaped by the low pass filter to sine wave and becomes tone 2.

Tone signals 1 and 2 turn ON and OFF at the cross point, thus dial tone, busy tone, and other tones, are produced.



11.9 DTMF GENERATOR CIRCUIT

TOP PREVIOUS NEXT

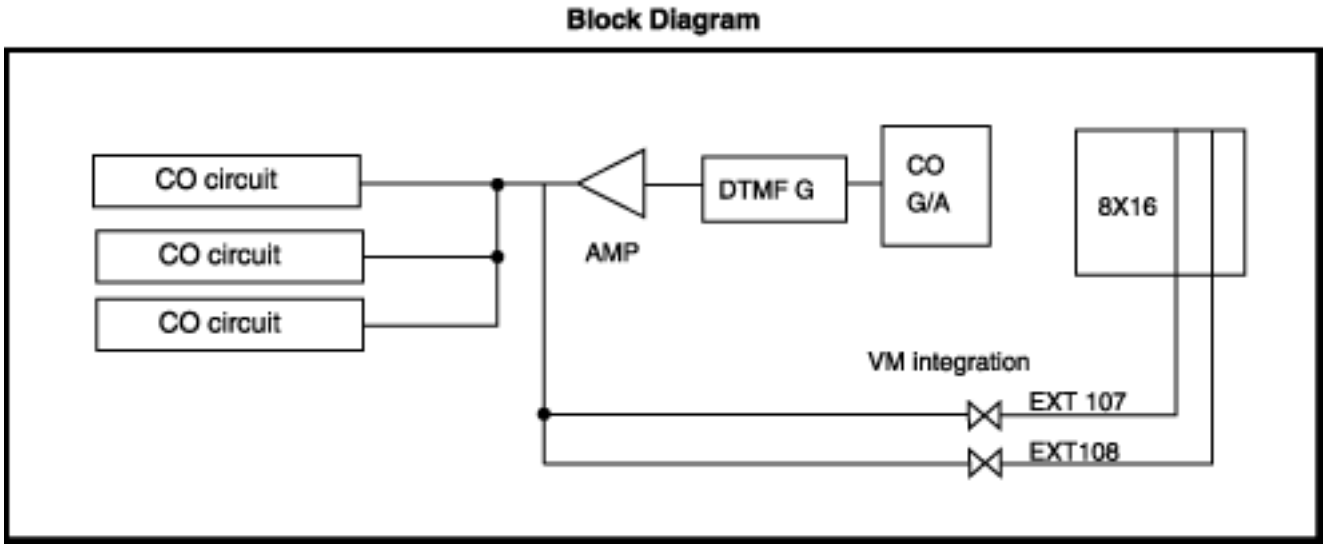
11.9.1 Composition

TOP PREVIOUS NEXT

11.9.1 Composition

TOP PREVIOUS NEXT

DTMF generator is controlled by the 8 bit I/O data of CO G/A. DTMF tone is sent to CO line, and EXT lines are used for VM integration.



TDMF GENERATOR

R1	R2	R3	R4	C1	C2	C3	C4	TRANSMIT SIGNAL
L	L	L	L	L	L	L	L	DISABLE
H	L	L	L	H	L	L	L	1
H	L	L	L	L	H	L	L	2
H	L	L	L	L	L	H	L	3
L	H	L	L	H	L	L	L	4
L	H	L	L	L	H	L	L	5
L	H	L	L	L	L	H	L	6
L	L	H	L	H	L	L	L	7
L	L	H	L	L	H	L	L	8
L	L	H	L	L	L	H	L	9
L	L	L	H	L	H	L	L	0
L	L	L	H	H	L	L	L	*
L	L	L	H	L	L	H	L	#

TOP PREVIOUS NEXT

11.10 DTMF RECEIVER CIRCUIT

TOP PREVIOUS NEXT

11.10.1 Composition

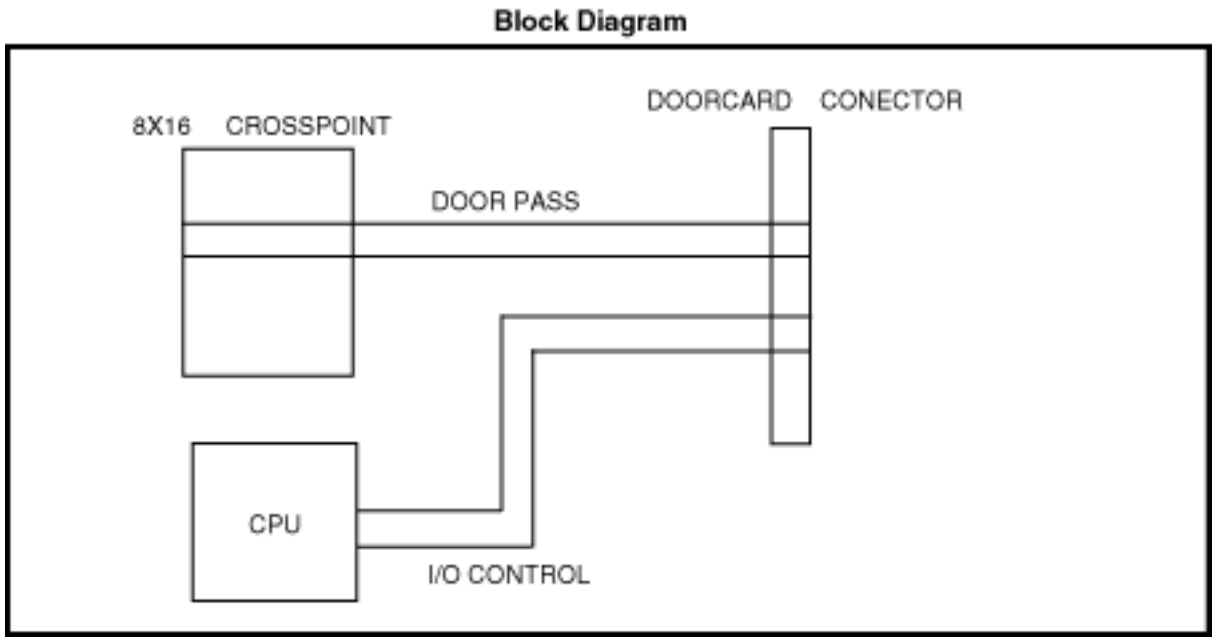
TOP PREVIOUS NEXT

11.11 DOORPHONE INTERFACE CIRCUIT

TOP PREVIOUS NEXT

This interface consists of the connector for doorphone card and the CPU and the crosspoint.

The 16 bit CPU controls dooropener SW and power supply for doorphone and connects doorphones. The Crosspoint controls EXT and doorphone pass.



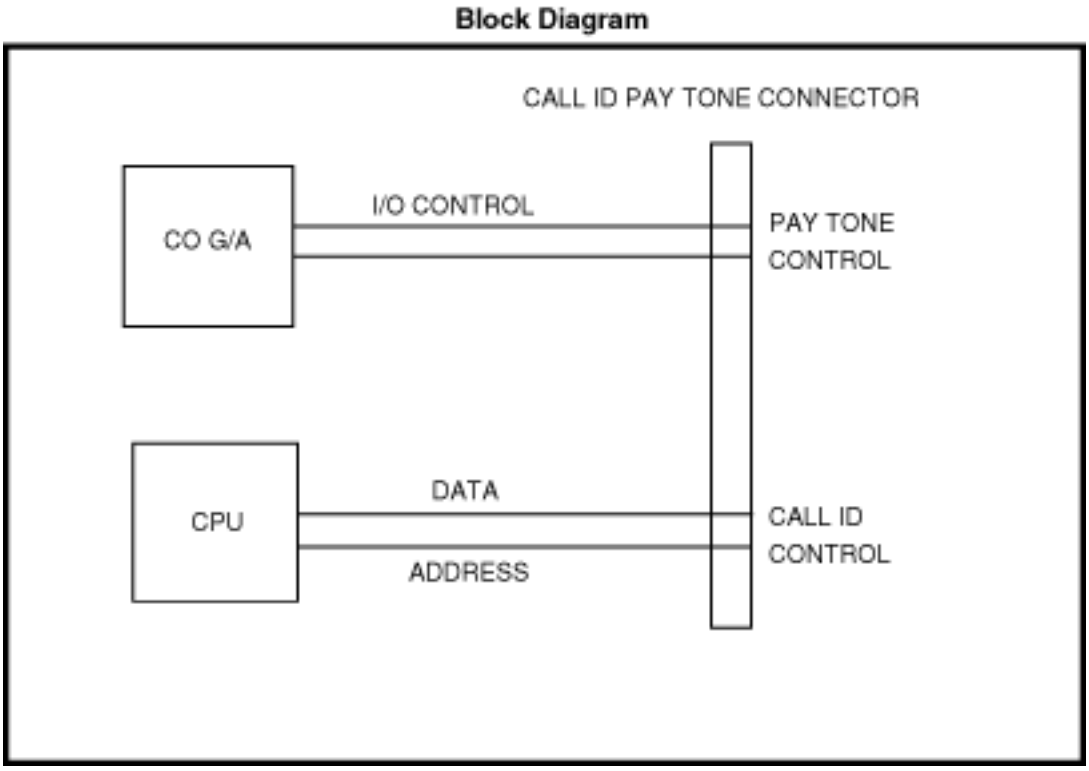
TOP PREVIOUS NEXT

11.12 CALL ID INTERFACE CIRCUIT

TOP PREVIOUS NEXT

This interface consists of the connector for CALL ID CARD.

CALL ID CARDs (CO1 ~ 3) communicate with the CPU by 8 bit data signals.

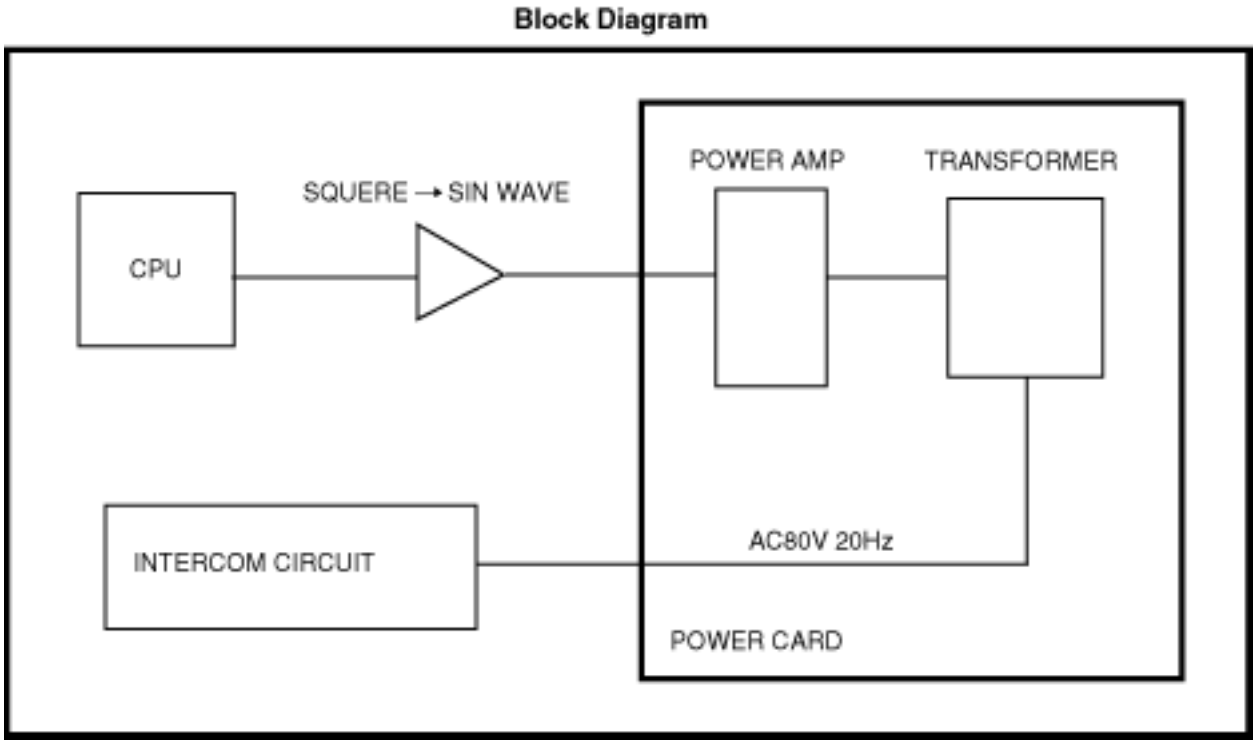


TOP PREVIOUS NEXT

11.13 RINGING SIGNAL GENERATOR CIRCUIT

TOP PREVIOUS NEXT

This section generates the ringing signal for the single line telephone. A 20Hz square wave is generated by the 16 bit CPU and sent to a low pass filter and ringing signal amplifier circuit and stepped by BELL transformer, andthen passed through the ringing signal switching relay to the single line telephone.

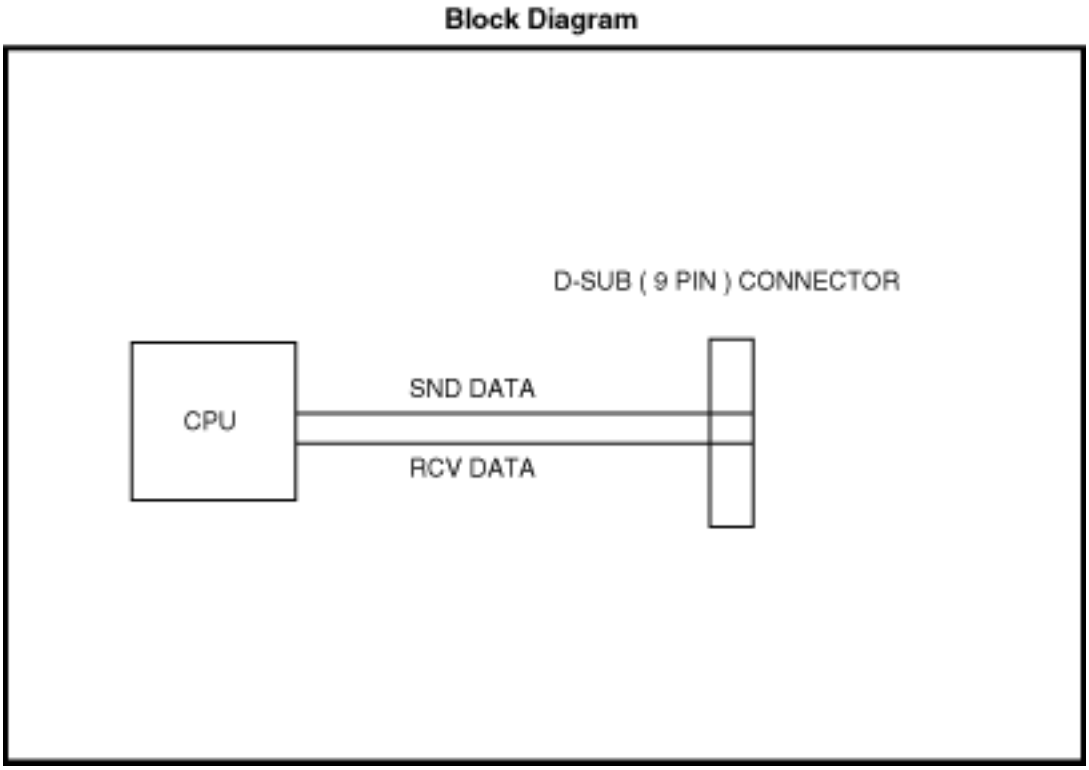


TOP PREVIOUS NEXT

11.14 SMDR INTERFACE CIRCUIT

TOP PREVIOUS NEXT

This is the RS-232C interface port. When the port is connected to a printer, the port can be used to output the SMDR feature recording massages and the contents of the system program.



TOP PREVIOUS NEXT

12 EXPLANATION OF BLOCK DIAGRAM/CIRCUIT OPERATIONS (DOORPHONE CARD)

TOP PREVIOUS NEXT

12.1 DOORPHONE CARD

12.1.1 Composition

TOP PREVIOUS NEXT

12.1 DOORPHONE CARD

TOP PREVIOUS NEXT

12.1.1 Composition

TOP PREVIOUS NEXT

12.1.1 Composition

This doorphone/dooropener card is composed of the control interface with main unit and two doorphone interfaces and two dooropener interfaces section.

1) Doorphone Section

This doorphone intercom pass is composed of the send amplifier and receive amplifier circuits.

These interfaces have the door phone connect detection circuit and the door phone hook detection circuit.

2) Dooropener Section

This doorphone/door opener card has two door opener interfaces. These interfaces are used for the door opener SW (DC30/AC250 5A).

13 EXPLANATION OF BLOCK DIAGRAM/CIRCUIT OPERATIONS (CALL ID DETECT CARD)

TOP PREVIOUS NEXT

13.1 CALL ID DETECT CARD

13.1.1 CALL ID Detect Circuit

13.1.2 Circuit Description for VMM Circuit

TOP PREVIOUS NEXT

13.1 CALL ID DETECT CARD

TOP PREVIOUS NEXT

13.1.1 CALL ID Detect Circuit

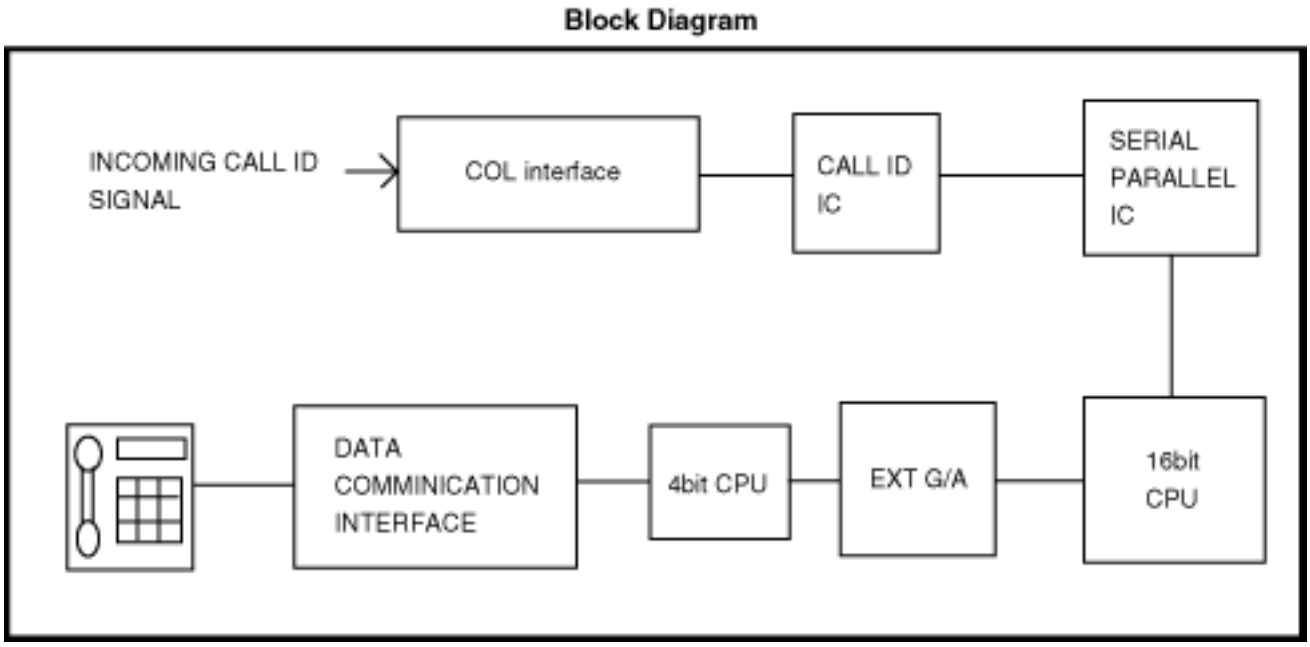
13.1.2 Circuit Description for VMM Circuit

TOP PREVIOUS NEXT

13.1.1 CALL ID Detect Circuit

TOP PREVIOUS NEXT

This card have three CALL ID detect circuit for three COL PORT. Incoming signal from COL is detected by CALL ID IC. The CALL ID data is changed to serial data from parallel data (8 bit data) by serial-parallel IC. After, the16 bit CPU detect this 8bit data and sending the CALL ID data for PITS.



TOP PREVIOUS NEXT

13.1.2 Circuit Description for VMM Circuit

Circuit Description

The VMM (Voice Mail Messaging) circuit consists of an interface to the CO line, an a filter circuit and an output stage.

The circuit monitors the tone present on the CO line and detects tone breaks.

Correctly formatted tone breaks indicate that a Voice Mail Message is present at the exchange. When detected, this information is passed to the system CPU and the user alerted via a connected PT.

The KX-TA308 3AP contains three VMM circuit, one for each available CO.

Signal Path

CN1 (CO1) → C55 → R60 → C53 → R57→ C52 → IC17 (6) → IC17 (2) → D50 → R52 → Q50 → R50 → CN1 (DIAL)

14 TROUBLESHOOTING GUIDE (MAIN UNIT)

TOP PREVIOUS NEXT

14.1 NO OPERATION (CHECK POWER SUPPLY BOARD, MAIN BOARD)

14.2 NO DIAL TONE (CHECK MAIN BOARD)

14.3 CAN NOT DIAL (CHECK MAIN BOARD)

14.4 CAN NOT CALL EXTENSION (CHECK MAIN BOARD)

14.5 CAN NOT USE PROPRIETARY TELEPHONE (CHECK MAIN BOARD)

14.6 CAN NOT RECEIVE INCOMING CALL (CHECK MAIN BOARD)

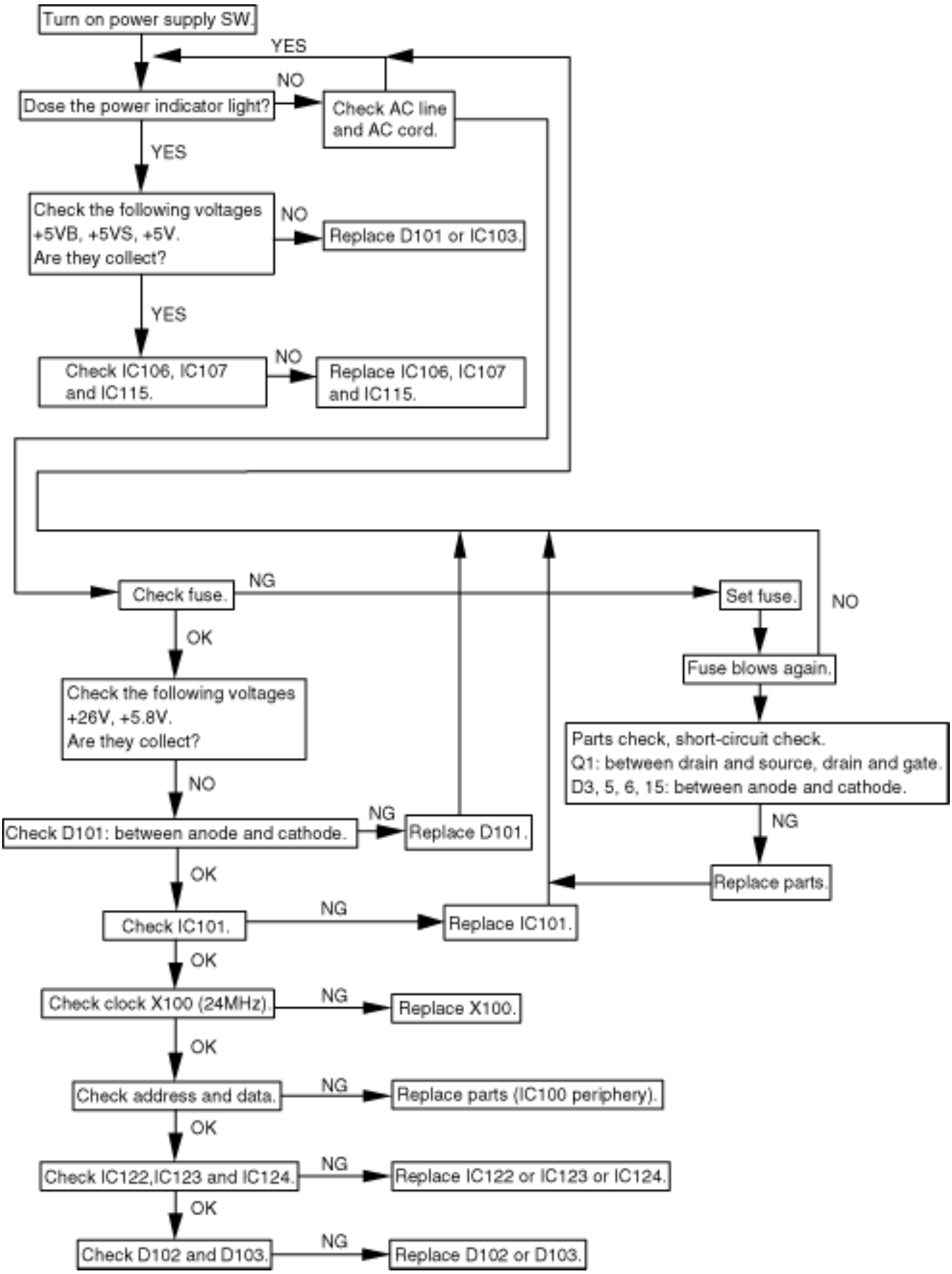
14.7 CAN NOT SEND DTMF DIALING (CHECK MAIN BOARD)

14.8 CAN NOT RECEIVE COL DIAL TONE (CHECK MAIN BOARD)

14.9 CAN NOT SEND A HOLD ON MUSIC (CHECK MAIN BOARD)

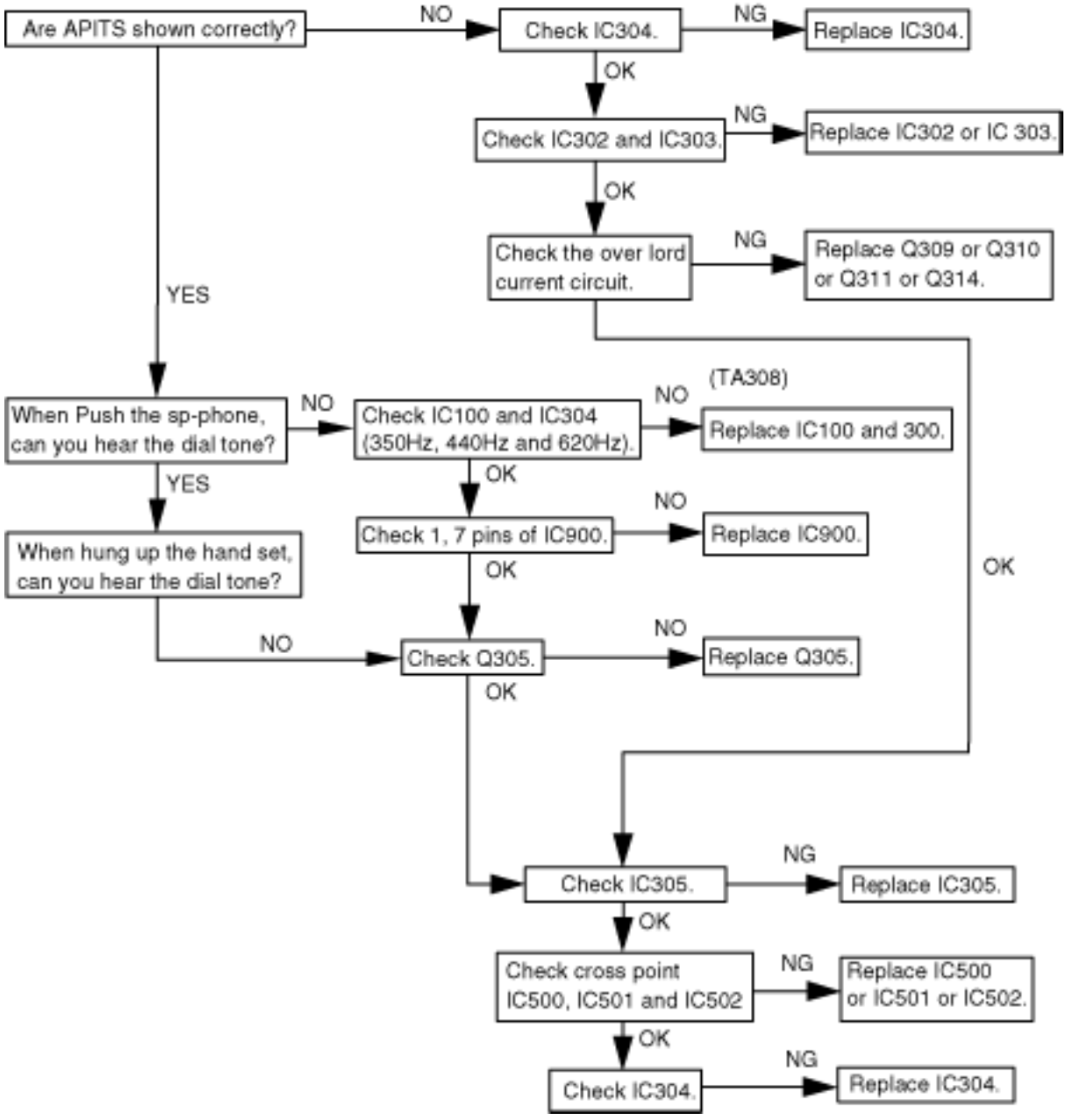
TOP PREVIOUS NEXT

14.1 NO OPERATION (CHECK POWER SUPPLY BOARD, MAIN BOARD)

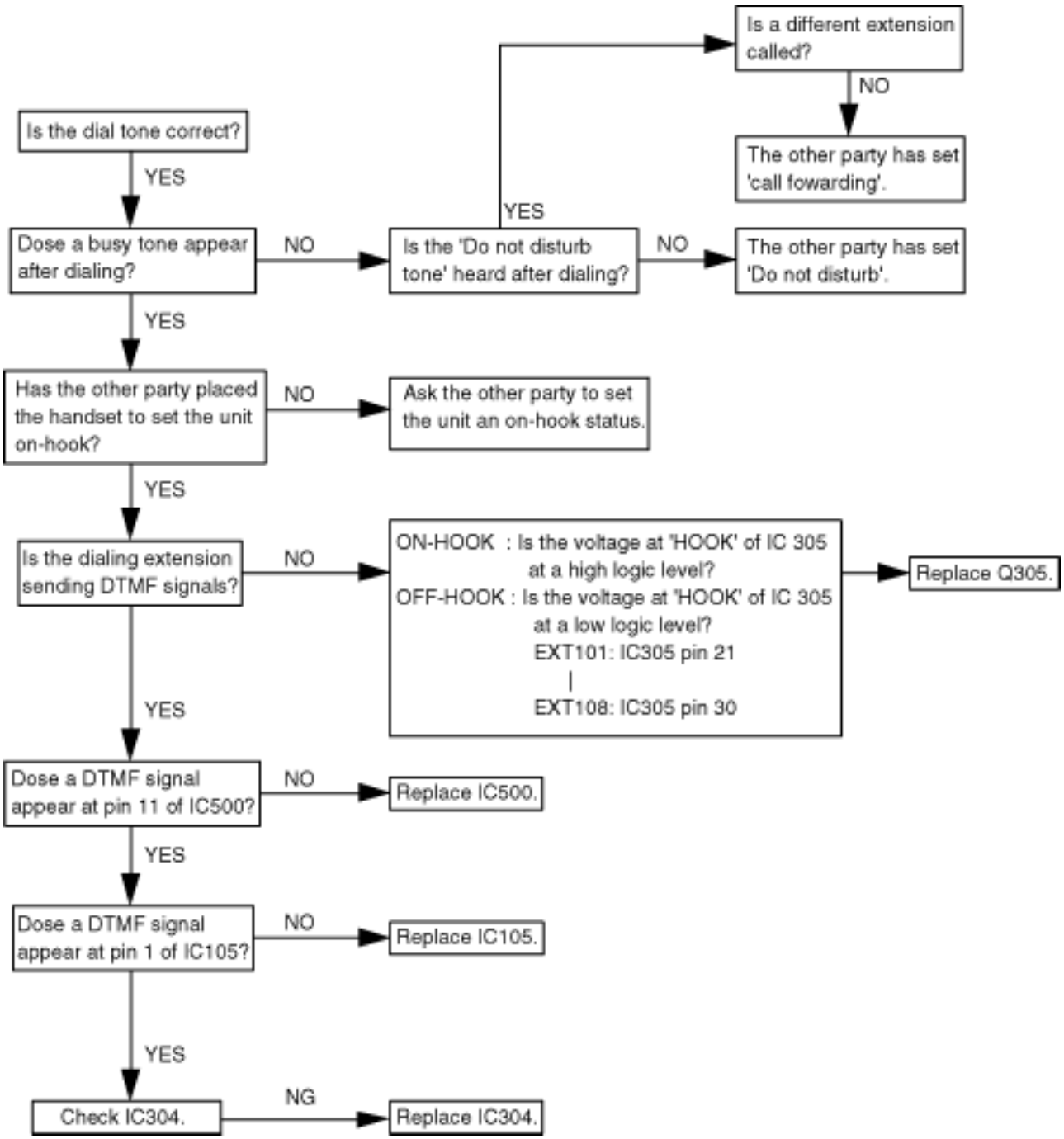


Check D102 and D103.
NG
Replace D102 or D103.

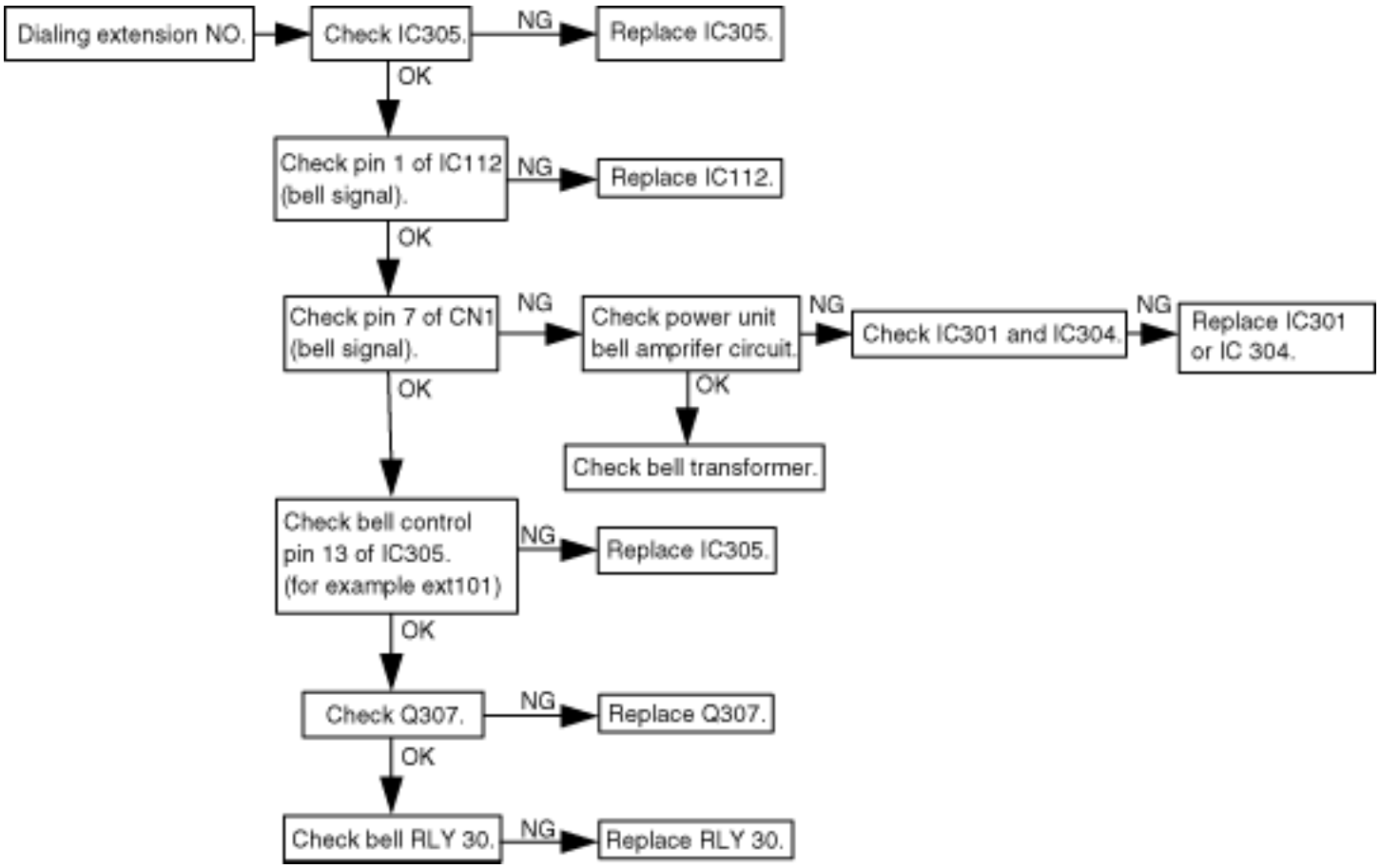
14.2 NO DIAL TONE (CHECK MAIN BOARD)



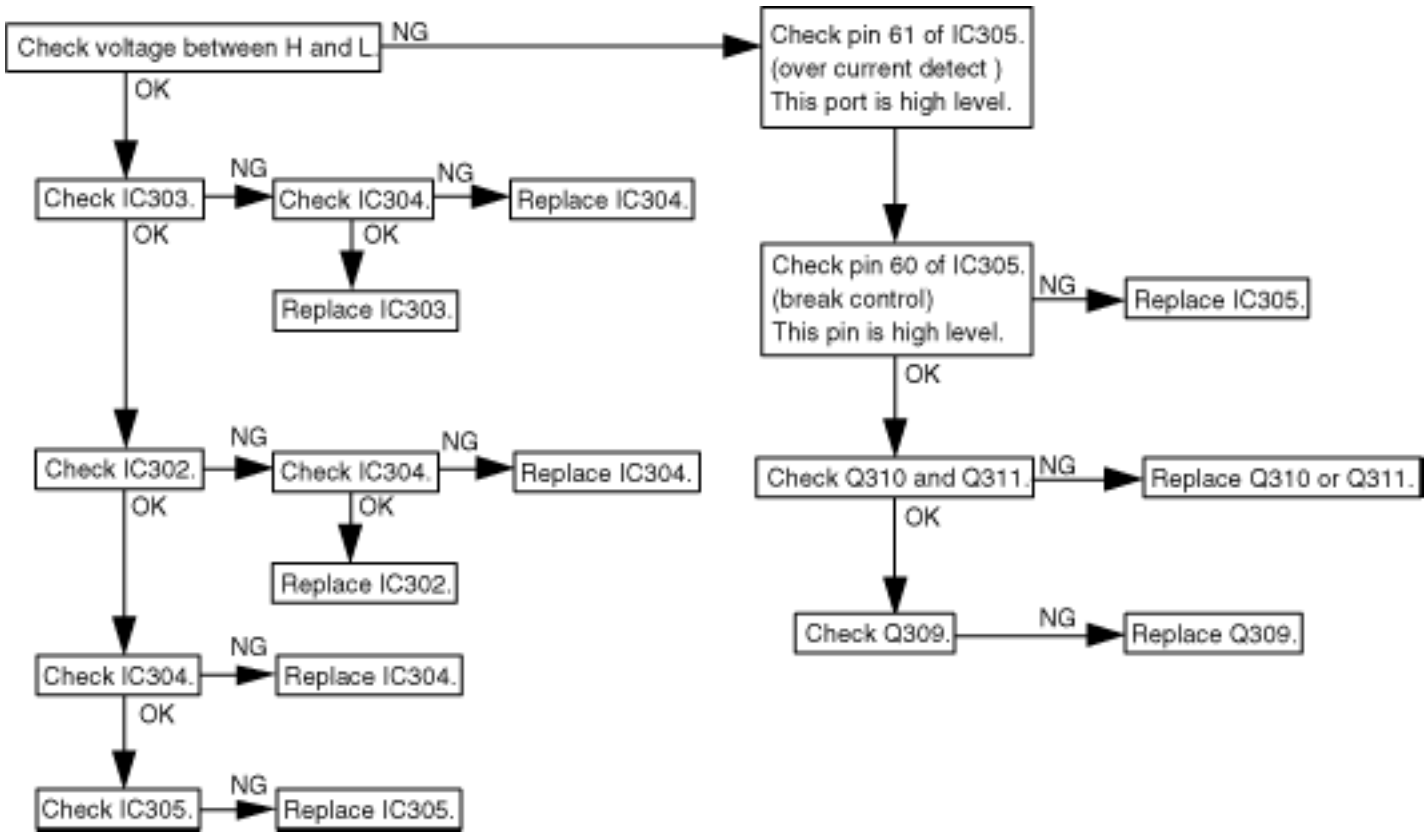
14.3 CAN NOT DIAL (CHECK MAIN BOARD)


Is a different extension called?
NO
The other party has set 'call fowarding'.
Is the dial tone correct?
YES
YES
Dose a busy tone appear after dialing?
NO
Is the 'Do not disturb tone' heard after dialing?
NO
The other party has set 'Do not disturb'.
YES
Has the other party placed the handset to set the unit on-hook?
NO
Ask the other party to set the unit an on-hook status.
YES
Is the dialing extension sending DTMF signals?
NO
ON-HOOK : Is the voltage at 'HOOK' of IC 305 at a high logic level?
OFF-HOOK : Is the voltage at 'HOOK' of IC 305 at a low logic level?
EXT101: IC305 pin 21
|
EXT108: IC305 pin 30
Replace Q305.
YES
Dose a DTMF signal appear at pin 11 of IC500?
NO
Replace IC500.
YES
Dose a DTMF signal appear at pin 1 of IC105?
NO
Replace IC105.
YES
Check IC304.
NG
Replace IC304.

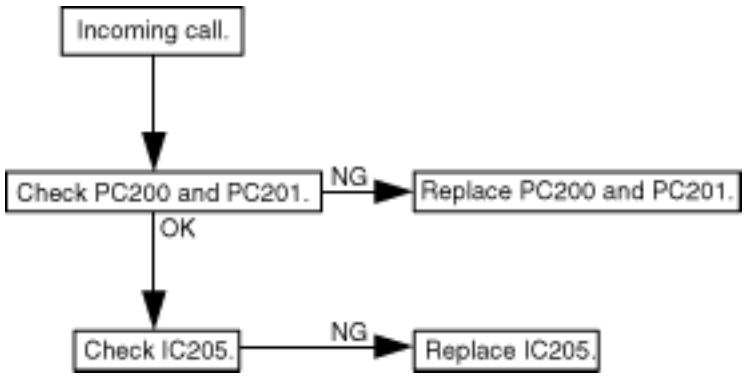
14.4 CAN NOT CALL EXTENSION (CHECK MAIN BOARD)



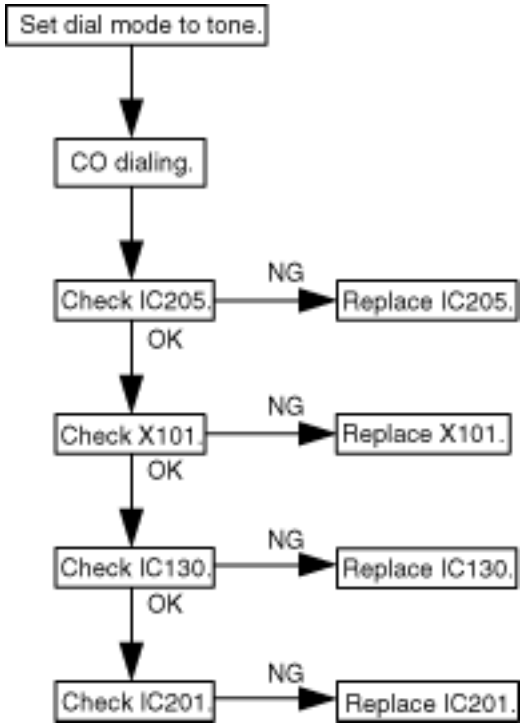
14.5 CAN NOT USE PROPRIETARY TELEPHONE (CHECK MAIN BOARD)



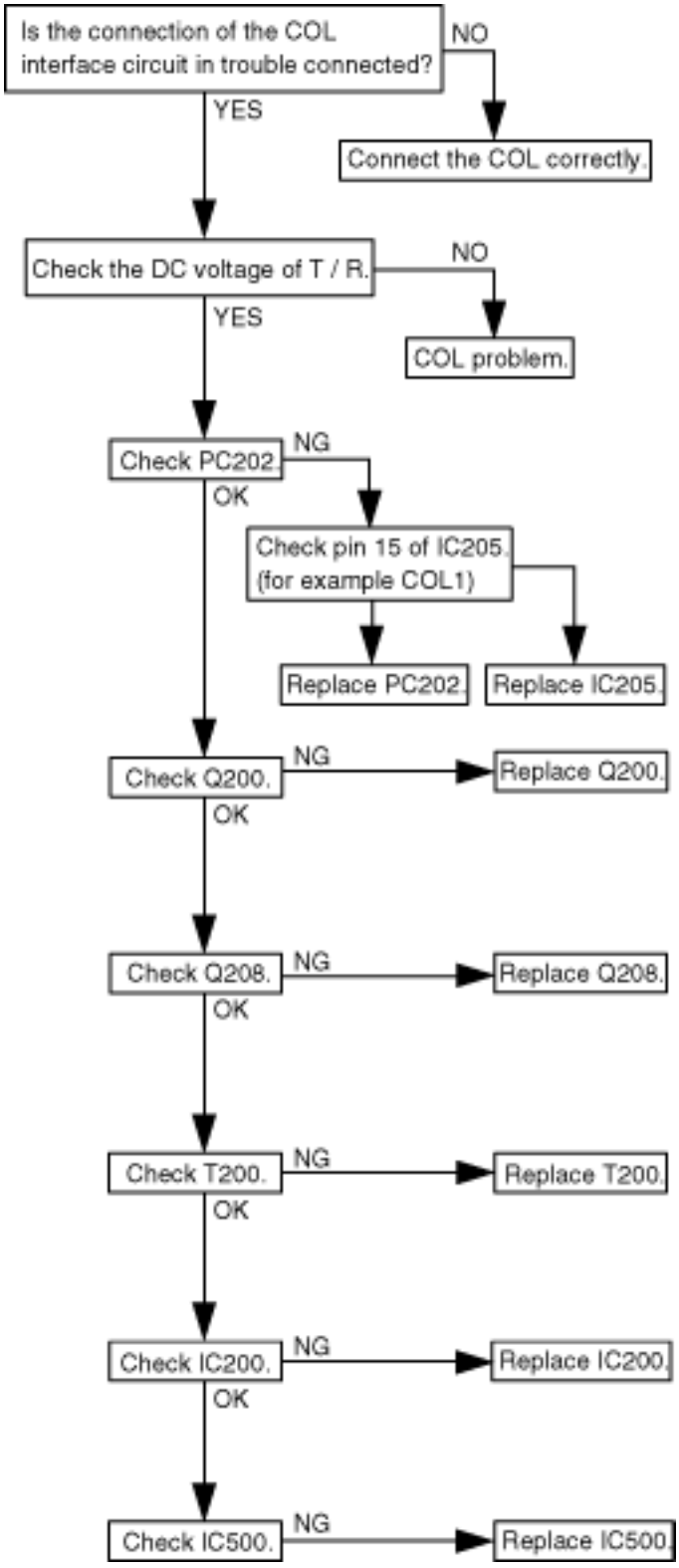
14.6 CAN NOT RECEIVE INCOMING CALL (CHECK MAIN BOARD)



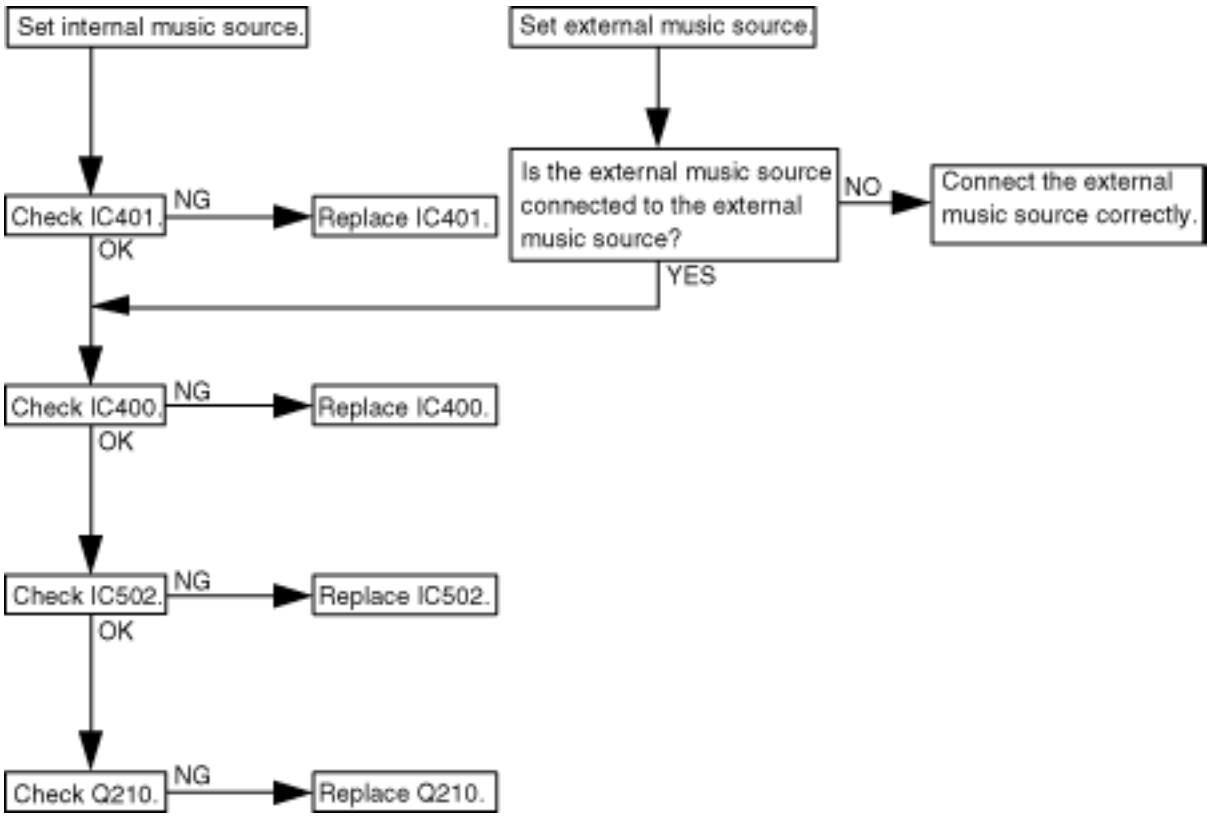
14.7 CAN NOT SEND DTMF DIALING (CHECK MAIN BOARD)



14.8 CAN NOT RECEIVE COL DIAL TONE (CHECK MAIN BOARD)



14.9 CAN NOT SEND A HOLD ON MUSIC (CHECK MAIN BOARD)



15 TROUBLESHOOTING GUIDE (DOORPHONE CARD)

TOP PREVIOUS NEXT

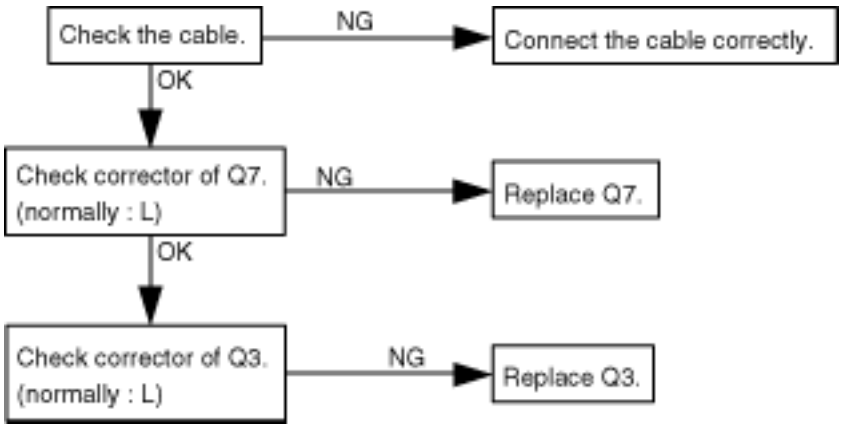
15.1 CAN NOT CALL FROM DOORPHONE

15.2 CAN NOT TALK

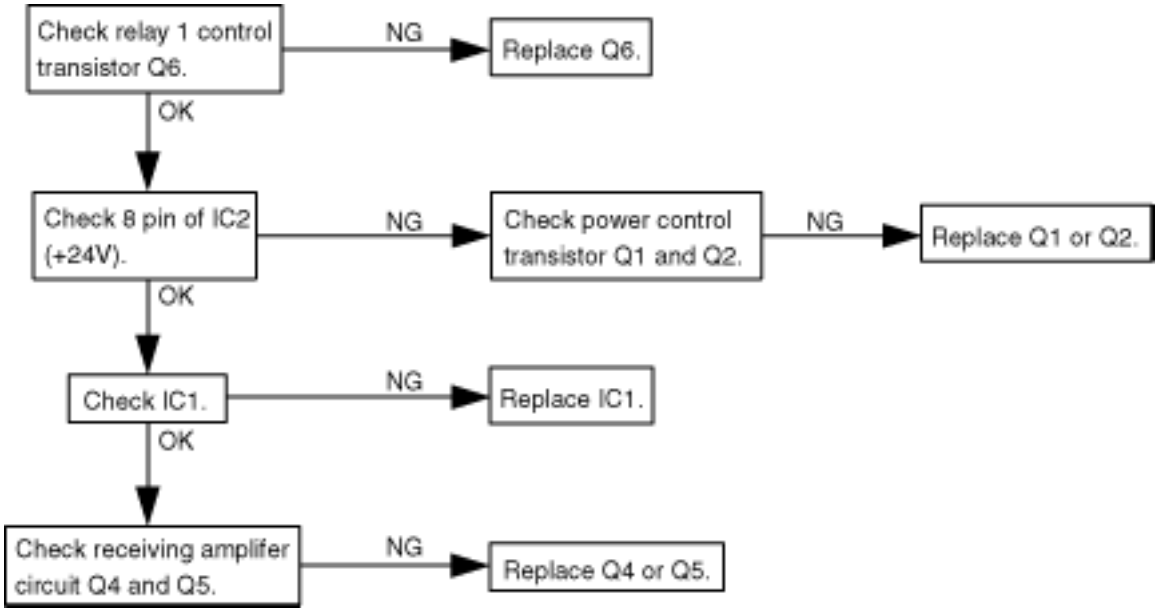
15.3 CAN NOT USE DOOROPENER

TOP PREVIOUS NEXT

15.1 CAN NOT CALL FROM DOORPHONE

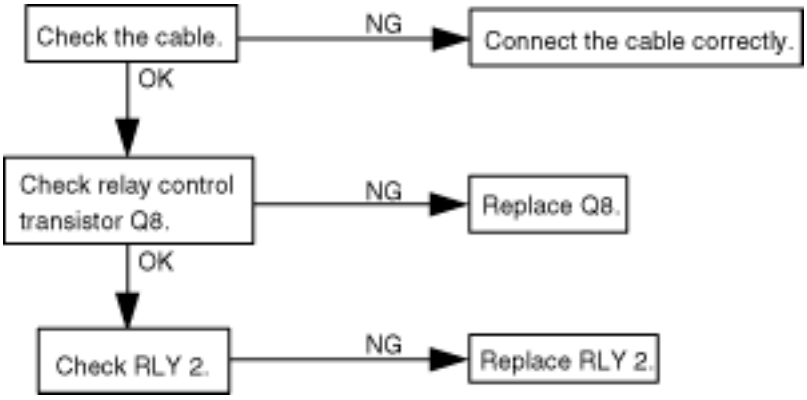


15.2 CAN NOT TALK



15.3 CAN NOT USE DOOROPENER

TOP PREVIOUS NEXT



TOP PREVIOUS NEXT

16 TROUBLESHOOTING GUIDE (CALL ID DETECT CARD)

TOP PREVIOUS NEXT

16.1 CAN NOT RECEIVE CALL ID DATA (FSK)

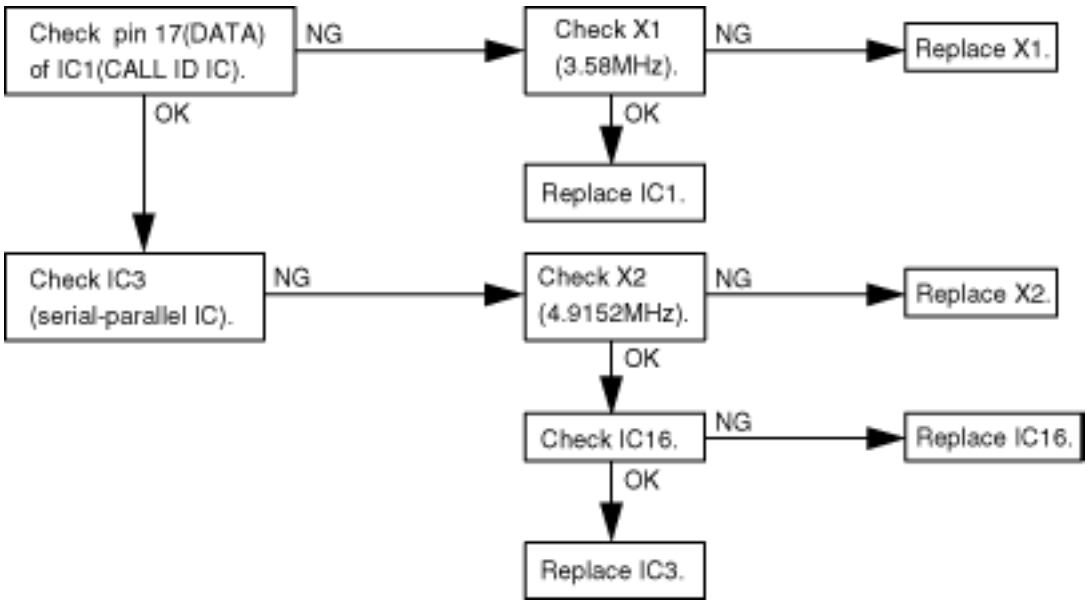
16.2 CAN NOT RECEIVE CALL ID DATA (DTMF)

16.3 CAN NOT SEND DTMF

16.4 CAN NOT DETECT VMM SIGNAL

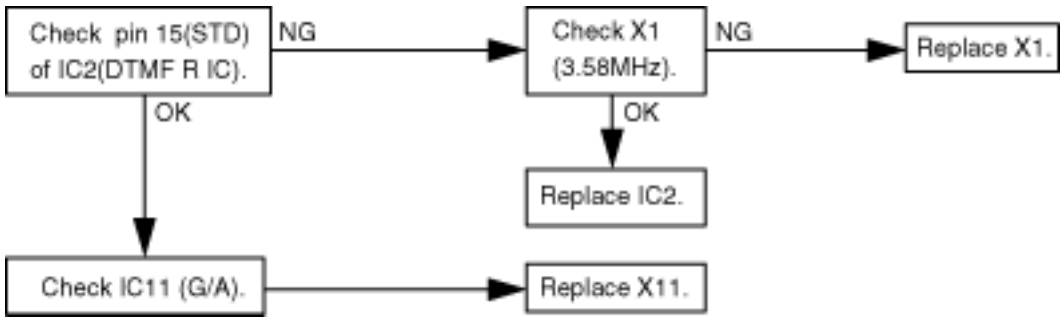
TOP PREVIOUS NEXT

16.1 CAN NOT RECEIVE CALL ID DATA (FSK)



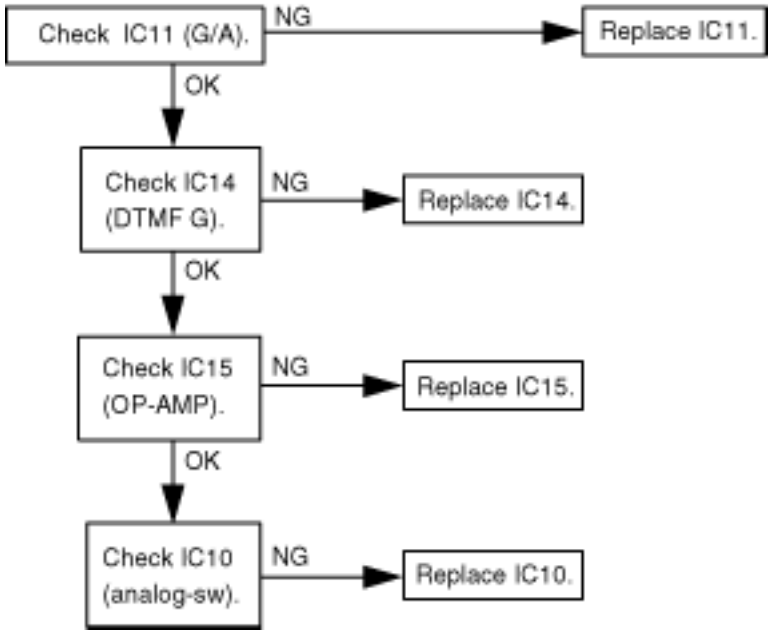
16.2 CAN NOT RECEIVE CALL ID DATA (DTMF)

TOP PREVIOUS NEXT

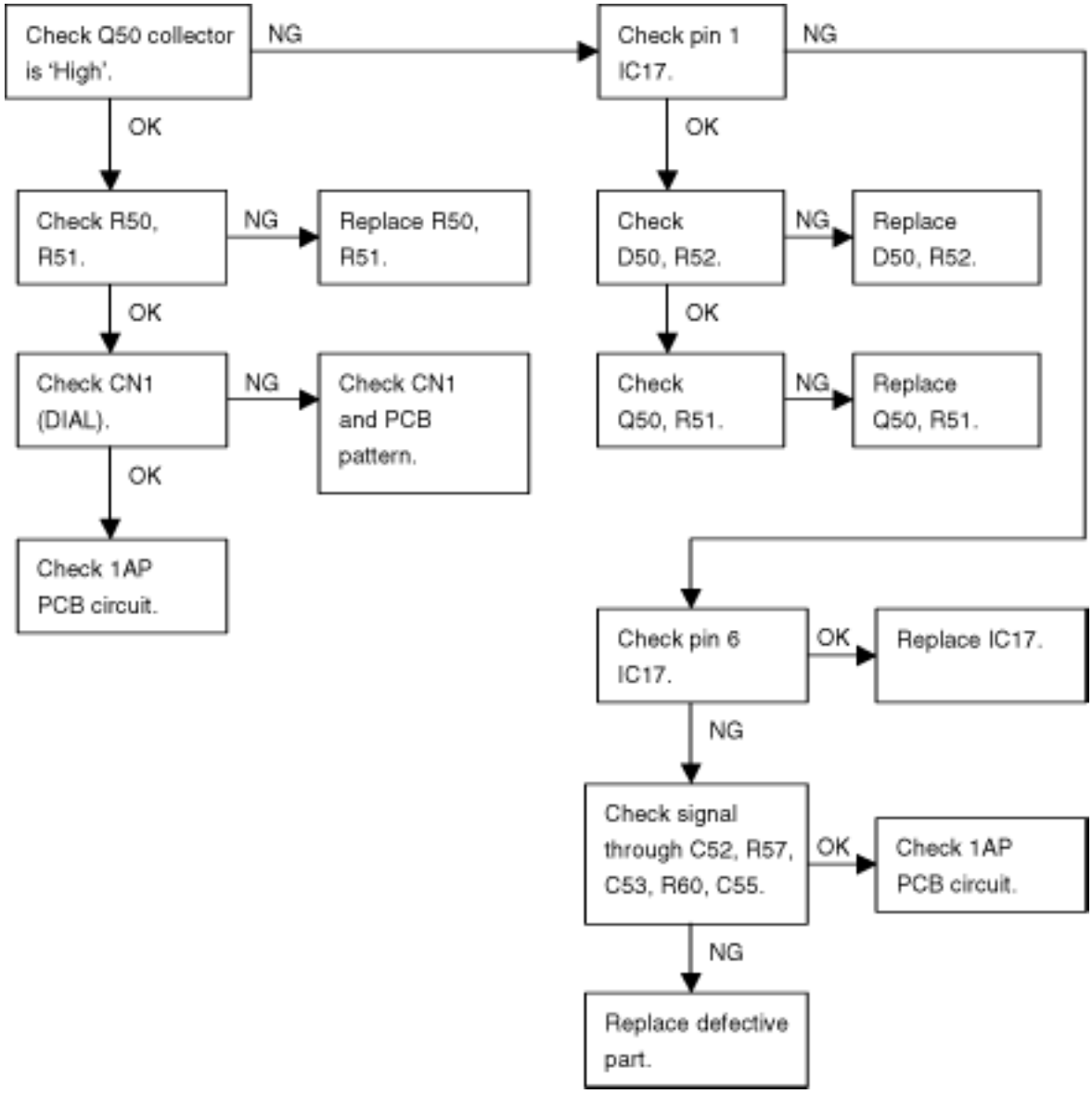


TOP PREVIOUS NEXT

16.3 CAN NOT SEND DTMF



16.4 CAN NOT DETECT VMM SIGNAL



17 IC DATA

TOP PREVIOUS NEXT

17.1 CPU (IC100) PORT MAP

17.2 BIT CPU (IC304) I / O PORT MAP

17.3 CO G / A (IC205) PORT MAP

17.4 EXT G / A (IC305) PORT MAP

TOP PREVIOUS NEXT

17.1 CPU (IC100) PORT MAP

TOP PREVIOUS NEXT

PIN NO	PORT	PIN NAME	I/O	FUNCTION	ACTIVE
15	P00	DHK1	I	DOORPHONE HOOK1	H:ACTIVE
16	P01	DHK2	I	DOORPHONE HOOK2	H:ACTIVE
17	P02	DHK3	I	DOORPHONE HOOK3	H:ACTIVE
18	P03	DHK4	I	DOORPHONE HOOK4	H:ACTIVE
19	P04	DCN1	I	DOORPHONE CONNECT DETECT1	H:ACTIVE
20	P05	DCN2	I	DOORPHONE CONNECT DETECT2	H:ACTIVE
21	P06	DCN3	I	DOORPHONE CONNECT DETECT3	H:ACTIVE
22	P07	DCN4	I	DOORPHONE CONNECT DETECT4	H:ACTIVE
24	P10	P10/NM1	I	-	L
25	P11	PPDWN/INTP0	I	DC POWER CUT OFF DETECT	H:DC POWER DETECT
26	P12	P12/INTP1	I	-	L
27	P13	RTC/INTP2	I	TIME INTERRUPT	L:ACTIVE
28	P14	P14/INTP3	I	AC POWER CUT OFF DETECT	L:ACTIVE
29	P15	P15/INTP4	I	-	L
30	P16	P16/INTP5	I	-	L
31	P20	EXTPAG	O	EXTPAGING	L:ACTIVE
32	P21	BGMSW	O	BGMSW	H:EXT L:INT
33	P22	LEDSW	O	LEDSW	H:ACTIVE
34	P23	TEST	O	TEST PORT	L:ACTIVE
35	P24	440Hz	O	TONE	H:ACTIVE
36	P25	25Hz	O	BELL	H:ACTIVE
37	P30	RS232CTXD	O	SERIAL DATA SEND	L
38	P31	RS232CRXD	I	SERIAL DATA RECEIVE	L
39	P32	R32/TXC/SCK0	O	-	L
40	P33	P33/CTS0	O	-	L
41	P34	MODEMTXD	O	-	L
42	P35	MODEMRXD	I	-	L
43	P36	P36/SCK1/CTS1	O	-	H:ACTIVE
45	P40	DOPN1	O	DOOR OPENER 1	H:ACTIVE
46	P41	DOPN2	O	DOOR OPENER 2	H:ACTIVE
47	P42	DOPN3	O	DOOR OPENER 3	H:ACTIVE
48	P43	DOPN4	O	DOOR OPENER 4	H:ACTIVE
49	P44	BUSY1	O	DOOR PHONE CALL 1, 2	H:ACTIVE
50	P45	BUSY2	O	DOOR PHONE CALL 3, 4	H:ACTIVE
51	P46	DRLY1	O	DOOR PHONE SW 1, 2	L:DOOR1 H:DOOR2
52	P47	DRLY2	O	DOOR PHONE SW 3, 4	L:DOOR3 H:DOOR4
54	P50	RTCCE	O	TIME CESIGNAL	H:ACTIVE
55	P51	RTCCLK	O	SHIFT CLOCK	H:ACTIVE
56	P52	RTCDATA	I/O	TIME SERIAL DATA	H:ACTIVE
59	P60	DEFAULT	I	DEFAULT SW	L:ACTIVE
60	P61	-	I	-	L
61	P62	-	I	-	L
62	P63	-	I	-	L

66	P70	-	O	-	L
67	P71	-	O	-	L
68	P72	-	O	-	L
69	P73	-	O	-	L
70	P74	-	O	-	L
71	P75	-	O	-	L
72	P76	-	O	-	L
73	P77	-	O	-	L
75	P80	RS232CDTR	O	DTR SIGNAL SEND	H:ACTIVE
76	P81	RS232CDSR	I	DTR SIGNAL RECEIVE	L:ACTIVE

TOP PREVIOUS NEXT

17.2 BIT CPU (IC304) I/O PORT MAP

TOP PREVIOUS NEXT

PIN NO	PORT	PIN NAME	I/O	FUNCTION	ACTIVE
32	P00	SD3	I	DISA1 DTMF SIGNAL	L:ACTIVE
31	P01	SD4	I	DISA2 DTMF SIGNAL	L:ACTIVE
30	P02	SD1	I	DTMFR1 SIGNAL	L:ACTIVE
29	P03	SD2	I	DTMF2 SIGNAL	L:ACTIVE
37	P10	CINT	I	CPR INTERRUPT	L:ACTIVE
36	P11	CREQ	I	CPR COMMUNICATE REQUEST	L:ACTIVE
35	P12	PRX1	I	RECEIVE DATA FROM PITS (01-08)	L:ACTIVE
33	P13	PRX2	I	RECEIVE DATA FROM PITS (09-16)	H:ACTIVE
43	P20	620Hz	O	620Hz SIGNAL	L:ACTIVE
42	P21	350Hz	O	350Hz SIGNAL	H:ACTIVE
41	P22	PTX1	O	SEND DATA FROM PITS (01-08)	H:ACTIVE
40	P23	CACK	O	CPR ACK SIGNAL	L:ACTIVE
26	P30	ACK1	O	ACK FROM DTMFR1	H:ACTIVE
25	P31	ACK2	O	ACK FROM DTMFR2	H:ACTIVE
24	P32	ACK3	O	ACK FROM DISA1	H:ACTIVE
23	P33	ACK4	O	ACK FROM DISA2	H:ACTIVE
16	P40	-	O	-	H:ACTIVE
15	P41	PA	O	ANALOGUE SW A	H:ACTIVE
14	P42	PB	O	ANALOGUE SW B	H:ACTIVE
13	P43	PC	O	ANALOGUE SW C	H:ACTIVE
11	P50	STD3	I	DTMF SIGNAL DETECT DISA1	H:ACTIVE
10	P51	STD4	I	DTMF SIGNAL DETECT DISA2	H:ACTIVE
9	P52	STD1	I	DTMF SIGNAL DETECT DTMFR1	H:ACTIVE
8	P53	STD2	I	DTMF SIGNAL DETECT DTMFR2	H:ACTIVE
7	P60	CRXD0	O	CPR RECEIVE DATA	H:ACTIVE
6	P61	CRXD1	O	CPR RECEIVE DATA	H:ACTIVE
5	P62	CRXD2	O	CPR RECEIVE DATA	H:ACTIVE
4	P63	CRXD3	O	CPR RECEIVE DATA	H:ACTIVE
3	P70	CTXD0	I	CPR SEND DATA	H:ACTIVE
2	P71	CTXD1	I	CPR SEND DATA	H:ACTIVE
1	P72	CTXD2	I	CPR SEND DATA	H:ACTIVE
44	P73	CTXD3	I	CPR SEND DATA	H:ACTIVE
28	P80	PCLR	O	DATA CLEAR	L:ACTIVE
27	P81	PTX2	O	SEND DATA FROM PITS (09-16)	H:ACTIVE

TOP PREVIOUS NEXT

17.3 CO G/A (IC205) PORT MAP

TOP PREVIOUS NEXT

PIN NO	PORT	PIN NAME	I/O	FUNCTION	ACTIVE
4	P00	COL1	O	DTMFGENERATOR	H:ACTIVE
5	P01	COL2	O	DTMFGENERATOR	H:ACTIVE
6	P02	COL3	O	DTMFGENERATOR	H:ACTIVE
7	P03	COL4	O	DTMFGENERATOR	H:ACTIVE
8	P04	ROW1	O	DTMFGENERATOR	H:ACTIVE
9	P05	ROW2	O	DTMFGENERATOR	H:ACTIVE
10	P06	ROW3	O	DTMFGENERATOR	H:ACTIVE
11	P07	ROW4	O	DTMFGENERATOR	H:ACTIVE
13	P10	CONF1	O	CONFERENCE	L:ACTIVE
14	P11	MUTE1	O	SENDMUTE	H:ACTIVE
15	P12	DL1	O	PULSEDIAL	H:ACTIVE
16	P13	DS1	O	DIALSHUNT	H:ACTIVE
17	P14	SHUNT1	O	RECEIVEMUTE	H:ACTIVE
18	P15	HD1	O	HOLD	L:ACTIVE
19	P16	BELLA1	I	BELLDETECTA	L:ACTIVE
20	P17	BELLB1	I	BELLDETECTB	L:ACTIVE
21	P20	CONF2	O	CONFERENCE	L:ACTIVE
24	P21	MUTE2	O	SENDMUTE	H:ACTIVE
25	P22	DL2	O	PULSEDIAL	H:ACTIVE
26	P23	DS2	O	DIALSHUNT	H:ACTIVE
27	P24	SHUNT2	O	RECEIVEMUTE	H:ACTIVE
28	P25	HD2	O	HOLD	L:ACTIVE
29	P26	BELLA2	I	BELLDETECTA	L:ACTIVE
30	P27	BELLB2	I	BELLDETECTB	L:ACTIVE
36	P30	CONF3	O	CONFERENCE	L:ACTIVE
37	P31	MUTE3	O	SENDMUTE	H:ACTIVE
38	P32	DL3	O	PULSEDIAL	H:ACTIVE
39	P33	DS3	O	DIALSHUNT	H:ACTIVE
40	P34	SHUNT3	O	RECEIVEMUTE	H:ACTIVE
41	P35	HD3	O	HOLD	L:ACTIVE
44	P36	BELLA3	I	BELLDETECTA	L:ACTIVE
45	P37	BELLB3	I	BELLDETECTB	L:ACTIVE
46	P40	DTMF1	O	DTMF DIAL CO1	L:ACTIVE
47	P41	DTMF2	O	DTMF DIAL CO1	L:ACTIVE
48	P42	DTMF3	O	DTMF DIAL CO1	L:ACTIVE
49	P43	PAD1	O	3 dB PAD	L:ACTIVE
50	P44	PAD2	O	3 dB PAD	L:ACTIVE
51	P45	PAD3	O	3 dB PAD	L:ACTIVE
53	P46	VMDTMF1	O	EXT107 VOICE MAIL INTEGRATION	L:ACTIVE
54	P47	VMDTMF2	O	EXT108 VOICE MAIL INTEGRATION	L:ACTIVE
55	P50	PAY1	I	PAY TONE DETECT1	L:DETECT
56	P51	PAY2	I	PAY TONE DETECT2	L:DETECT
57	P52	PAY3	I	PAY TONE DETECT3	L:DETECT
58	P53	DIAL1	I	DIAL TONE DETECT1	L:DETECT
59	P54	DIAL2	I	DIAL TONE DETECT2	L:DETECT
60	P55	DIAL3	I	DIAL TONE DETECT3	L:DETECT
61	P56	CALLCARD	I	CALL ID CARD (CO1-CO3) DETECT	L:DETECT
64	P57	PAY CARD	I	PAY CARD (CO1-CO3) DETECT	L:DETECT

31	P60	CDT1	I	CURRENT DETECT1	L:DETECT
32	P61	CDT2	I	CURRENT DETECT2	L:DETECT
34	P62	CDT3	I	CURRENT DETECT3	L:DETECT
35	P63	DOORCARD	I	DOOR CARD DETECT	L:DETECT

TOP PREVIOUS NEXT

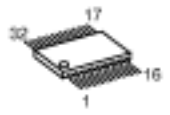
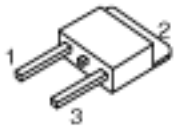
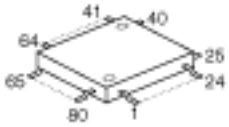
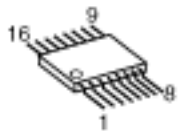
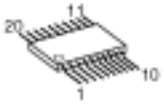
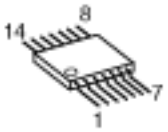
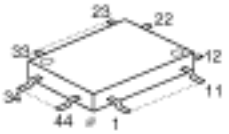
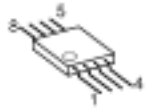
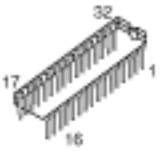
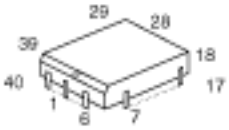
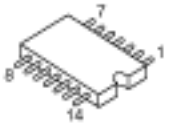
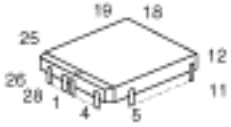
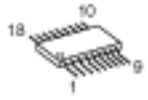
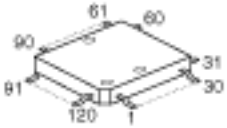
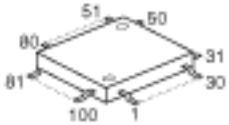
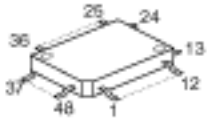
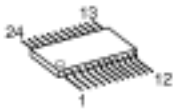
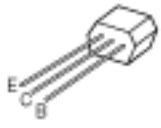
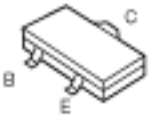
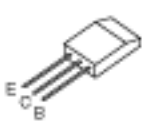
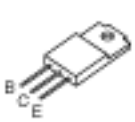
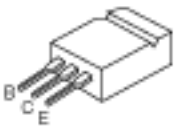
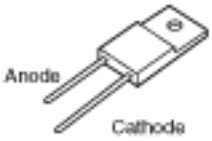
17.4 EXT G/A (IC305) PORT MAP

PIN NO	PORT	PIN NAME	I/O	FUNCTION	ACTIVE
4	P00	CTXD0	O	CPR SEND DATA	H:ACTIVE
5	P01	CTXD1	O	CPR SEND DATA	H:ACTIVE
6	P02	CTXD2	O	CPR SEND DATA	H:ACTIVE
7	P03	CTXD3	O	CPR SEND DATA	H:ACTIVE
8	P04	CINT	O	INTERRUPT TO 4 BIT CPU	L:ACTIVE
9	P05	-	O	-	H
10	P06	PDRLY1	O	POWER FAILURE TRANSFER	L:ACTIVE
11	P07	RESET4BIT	O	RESET TO 4 BIT CPU	L:ACTIVE
13	P10	BELL1	O	EXT BELL CONTROL 1	H:ACTIVE
14	P11	BELL2	O	EXT BELL CONTROL 2	H:ACTIVE
15	P12	BELL3	O	EXT BELL CONTROL 3	H:ACTIVE
16	P13	BELL4	O	EXT BELL CONTROL 4	H:ACTIVE
17	P14	BELL5	O	EXT BELL CONTROL 5	H:ACTIVE
18	P15	BELL6	O	EXT BELL CONTROL 6	H:ACTIVE
19	P16	BELL7	O	EXT BELL CONTROL 7	H:ACTIVE
20	P17	BELL8	O	EXT BELL CONTROL 8	H:ACTIVE
21	P20	HOOK1	I	EXT HOOK DETECT 1	L:ACTIVE
24	P21	HOOK2	I	EXT HOOK DETECT 2	L:ACTIVE
25	P22	HOOK3	I	EXT HOOK DETECT 3	L:ACTIVE
26	P23	HOOK4	I	EXT HOOK DETECT 4	L:ACTIVE
27	P24	HOOK5	I	EXT HOOK DETECT 5	L:ACTIVE
28	P25	HOOK6	I	EXT HOOK DETECT 6	L:ACTIVE
29	P26	HOOK7	I	EXT HOOK DETECT 7	L:ACTIVE
30	P27	HOOK8	I	EXT HOOK DETECT 8	L:ACTIVE
36	P30	CNG1	I	CNG1 DETECT	H:ACTIVE
37	P31	VOX1	I	VOX1 DETECT	H:ACTIVE
38	P32	EOM1	I	MASSAGE 1	L:ACTIVE
39	P33	STD3	I	DISA 1 DTMF RECEIVE	H:ACTIVE
40	P34	RESET1	O	RESET1	L:ACTIVE
41	P35	P/R1	O	REC/PLAY1	L:REC H:PLAY
44	P36	CE1	O	OGM CE1	L:ACTIVE
45	P37	OGMSW1	O	OGM1 SW	L:ACTIVE
46	P40	CNG2	I	CNG2 DETECT	H:ACTIVE
47	P41	VOX2	I	VOX2 DETECT	H:ACTIVE
48	P42	EOM2	I	MASSAGE 2	L:ACTIVE
49	P43	STD4	I	DISA 2 DTMF RECEIVE	H:ACTIVE
50	P44	RESET2	O	RESET2	L:ACTIVE
51	P45	P/R2	O	REC/PLAY2	L:REC H:PLAY
53	P46	CE2	O	OGM CE2	L:ACTIVE
54	P47	OGMSW2	O	OGM2 SW	L:ACTIVE
55	P50	CRXD0	O	CPR RECEIVE DATA	H:ACTIVE
56	P51	CRXD1	O	CPR RECEIVE DATA	H:ACTIVE
57	P52	CRXD2	O	CPR RECEIVE DATA	H:ACTIVE
58	P53	CRXD3	O	CPR RECEIVE DATA	H:ACTIVE
59	P54	CREQ	O	CPR REQUEST	L:ACTIVE
60	P55	BR1	O	BREAK1	L:ACTIVE
61	P56	OL1	I	OVER CURRENT1	L
64	P57	CACK	I	CPR ACK	L:ACTIVE

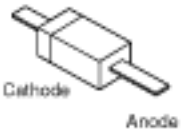
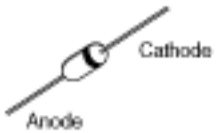
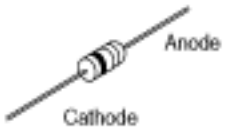
31	P60	TA616CARD	I	TA62477 DETECT	L:ACTIVE
32	P61	DISACARD	I	OGM DETECT	L:ACTIVE
34	P62	TA08CARD	I	TA62470 DETECT	L:ACTIVE
35	P63	-	I	-	H

TOP PREVIOUS NEXT

18 TERMINAL GUIDE OF ICS, TRANSISTORS AND DIODES

 PSVIGM7512FF	 PSVIBA17812F	PSVIPS600CMT	 PQVI92011556	 PQVIDS14C232 PQVISN7H138S PQVITC7H139F
 PSVILC7366NM PQVISN7H373S	 PQVILC73872M PQVITC4066BF PQVITC7H04AF PQVIMC4051BF PQVIMB7HU04F	PSVITC7S08FU PQVITC7S00FL PQVITC7SU04F	 PSVI008GBE65	 PQVINJM4558M PSVIRS5C313E PQVINJM4558M
 PSWITA308M	 PSVIMT8816AP	 PQVITC4011BF	 PSVIMT8806AP	 PQVICM8870FI
AN8021L	 PSVI433G125B	PQVIUM66T11L	 PQVI92018554	PSVIPQ1CF2 PQVILA6500
 PQVIMB89371A	 PSVIMT88E43S	 2SC1740S, 2SA933	 PQVTDTC143E, PQVTDTA143EU 2SA1576S, UN5213, 2SC4081Q, UN5113, UN521DTX, PQVTDTA124XU, PQVTDTC124EU	
 2SA1627	PSVTFS7KM18A	 2SD2061	 2SD2137 2SB1417P	2SB1322 2SD1994A
				

2SC4731S	2SD1664Q	PSVDYG902C2R PSVDYG811S6R	PQVDS1ZB40F1	PQVDS5688G

 MA110 PSVDUDZ36B	PSVDUDZ20B PSVDUDZ68B PSVDUDZ12BT	PQVDD3SBA60M	PSVDERA2206	PQVDERA1506 PSVDERB83006
MA4200, MA700A PSVDML010LT	 PSVDHZS272, 1SS131 PSVDHZS152, PSVDHZS7A2 PSVDHZS12A2, PSVDHZS202 PSVDHZS222	 PQVDHZS2B1 MA4062		

TOP PREVIOUS NEXT

19 HOW TO REPLACE A FLAT PACKAGE IC

TOP PREVIOUS NEXT

19.1 PREPARATION

19.2 PROCEDURE

19.3 REMOVING SOLDER FROM BETWEEN PINS

TOP PREVIOUS NEXT

19.1 PREPARATION

- PbF (: Pb free) Solder
- Soldering Iron

  Tip Temperature of 700°F ± 20°F (370°C ± 10°C)

  Note: We recommend a 30 to 40 Watt soldering iron. An expert may be able to use a 60 to 80 Watt iron where someone with less experience could overheat and damage the PCB foil.
- Flux

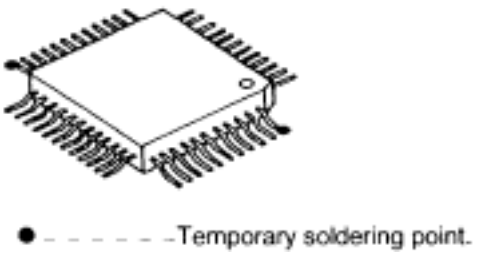
  Recommended Flux: Specific Gravity → 0.82.

  Type → RMA (lower residue, non-cleaning type)

Note: See ABOUT LEAD FREE SOLDER (PbF: Pb free) ().

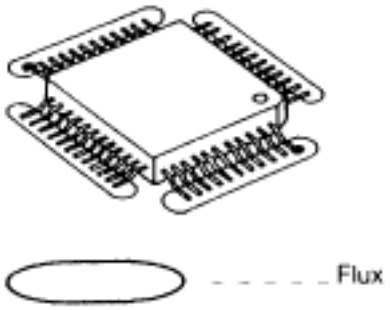
19.2 PROCEDURE

1. Tack the flat pack IC to the PCB by temporarily soldering two diagonally opposite pins in the correct positions on the PCB.

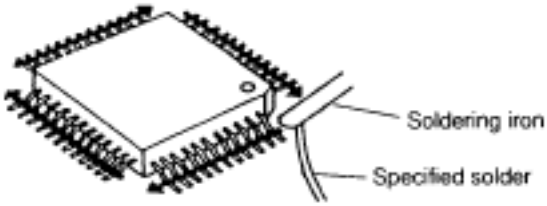


Be certain each pin is located over the correct pad on the PCB.

2. Apply flux to all of the pins on the IC.



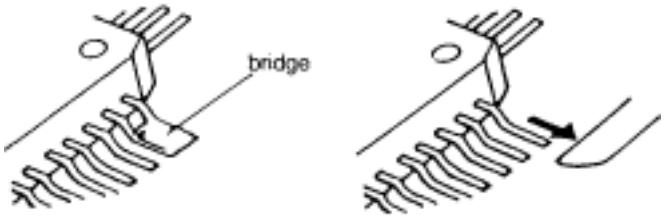
3. Being careful to not unsolder the tack points, slide the soldering iron along the tips of the pins while feeding enough solder to the tip so that it flows under the pins as they are heated.



19.3 REMOVING SOLDER FROM BETWEEN PINS

1. Add a small amount of solder to the bridged pins.

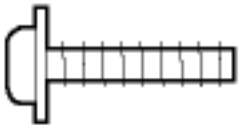
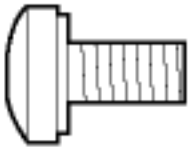
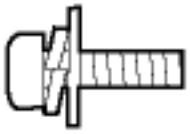
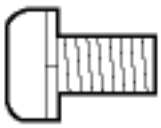
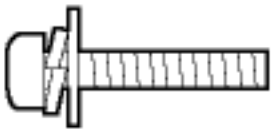
2. With a hot iron, use a sweeping motion along the flat part of the pin to draw the solder from between the adjacent pads.



20 FIXTURES AND TOOLS

21 CABINET AND ELECTRICAL PARTS LOCATION

SCREWS

Ref. No.	Part No.	Figure
Ⓐ	XTW3+S12P ϕ3 x 12 mm	
Ⓑ	XYM4+EP8BN ϕ4 x 8 mm	
Ⓒ	XYN3+F8 ϕ3 x 8 mm	
Ⓓ	XYN4+C8 ϕ4 x 12 mm	
Ⓔ	XYN3+F12FN ϕ3 x 12 mm	

22 ACCESSORIES AND PACKING MATERIALS

23 REPLACEMENT PARTS LIST

Note:

1. RTL (Retention Time Limited)

   The marking (RTL) indicates that the Retention Time is limited for this item.

   After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability depends on the type of assembly and the laws governing parts and product retention.At the end of this period, the assembly will no longer be available.

2. Important safety notice Components identified by the ⚠ mark indicates special characteristics important for safety. When replacing any of these components, only usespecified manufacture´s parts.

3. The S mark means the part is one of some identical parts. For that reason, it may be different from the installed part.

4. ISO code (Example: ABS-94HB) of the remarks column shows quality of the material and a flame resisting grade about plastics.

5. RESISTORS & CAPACITORS

   Unless otherwise specified;

   All resistors are in ohms (Ω), k=1000Ω, M=1000kΩ

   All capacitors are in MICRO FARADS (μF), p=μ(μF)

   *Type & Wattage of Resistor

Type

ERC:Solid ERD:Carbon PQRD:Carbon	ERX:Metal Film ERG:Metal Oxide ER0:Metal Film	PQ4R:Carbon ERS:Fusible Resistor ERF:Cement Resistor

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage of Capacitor

Type

ECFD:Semi-Conductor ECQS:Styrol PQCUV:Chip ECQMS:Mica	ECCD,ECKD,ECBT,PQCBC:Ceramic ECQE,ECQV,ECQG:Polyester ECEA,ECSZ:Electrolytic ECQP:Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H:50V 2A:100V 2E:250V 2H:500V	05:50V 1:100V 2:200V	0F:3.15V 1A:10V 1V:35V 0J:6.3V	0J :6.3V 1A :10V 1C :16V 1E,25:25V	1V :35V 50,1H:50V 1J :63V 2A :100V

23.1 CABINET AND ELECTRICAL PARTS LOCATION

23.2 ACCESSORIES AND PACKING MATERIALS

23.3 MAIN BOARD PARTS

23.4 DOORPHONE / DOOR-OPERATOR CARD PARTS

23.5 CALLER ID CARD PARTS

23.6 POWER SUPPLY BOARD PARTS

23.7 FIXTURES AND TOOLS

23.1 CABINET AND ELECTRICAL PARTS LOCATION

TOP PREVIOUS NEXT

Ref. No.	Part No.	Part Name & Description	Remarks
1	PSKF1030T1	CABINET, FRONT	PS-V0
2	QUQT00019Z	LABEL, CAUTION	
3	PSKV1010Z1	COVER	PS-V0
4	PSQT1431Z	LABEL, CAUTION	
5	PQHD10011V	SCREW	
6	PSUS1022Z	SPRING	
7	XUC3VW	RETAINING RING	
8	PSHR1146Z	PANEL, LED	
9	PSQT1536Z	LABEL, CAUTION	
10	QUQT00003Z	LABEL, CAUTION	
11	PSKE1020Y1	COVER	PS-V0
12	PSGG1009W1	GRILLE	PS-V0
13	PSMH1135Z	ANGLE	
14	PSLT1K9M2A	TRANSFORMER	
15	PSKM1056Y1	CABINET BODY	PS-V0
16	QUGT00140Y	NAME PLATE	
17	PSQT1519Z	LABEL, CAUTION	
18	PQQT9626Z	LABEL, CAUTION	
19	PSST2A003Z	SWITCH, POWER	
20	PSJS02Q10Z	CONNECTOR, 2P	
21	PQLB5F1	INSULATOR	
22	PSMH1151Z	ANGLE	
23	PSJS07Q12Y	CONNECTOR, 7P	
24	PSHE1071Z	BAND	
25	PSHR1177Z	REVET	

23.2 ACCESSORIES AND PACKING MATERIALS

TOP PREVIOUS NEXT

Ref. No.	Part No.	Part Name & Description	Remarks
A1	PSWATA624MUK	AC CORD ASS´Y	⚠
A2	XZB05X08A03	PROTECTION COVER	
A3	PQJP1E1Z	PLUG	
A4	XWG35FY	WASHER	
A5	PQHE5004Z	SCREW	
A6	PSQX3101ZCD	CD-ROM	
A7	QUQW00116Z	LEAFLET, QUICK GUIDE	
A8	PQJS1T30Z	JACK, TERMINAL BOX	
A9	PQJA48W	CORD, TEL	
A10	PSQW2119Z	CD-ROM LEAFLET	
A11	PSQW2154Z	SLT QUICK REFERENCE GUIDE	
A12	QUQW00132Z	ADDENDUM	
P1	QUPK00054Z	PACKING CASE	
P2	PSPN1105Z	ACCESSORY BOX	
P3	PSPD1087Z	CUSHION2, TOP	
P4	PSPD1086Z	CUSHION1, BOTTOM	
P5	PSPP1050Z	BAG,POLYETHYLENE	
P6	PSPD1085Z	CUSHION4, TOP	
P7	PSPD1084Z	CUSHION3, BOTTOM	

TOP PREVIOUS NEXT

23.3 MAIN BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB1	PSWP1TA308MU	MAIN BOARD ASSÅLY (RTL)	
		(ICS)	
IC100	PSVI433G125B	IC	S
IC102	PSVIHY6100GF	IC	S
IC104	PQVILC73872M	IC	S
IC105	PQVILC73872M	IC	S
IC106	PQVISN7H138S	IC	S
IC107	PQVISN7H138S	IC	S
IC108	PQVISN7H373S	IC	S
IC110	PQVIRIS5C313	IC	S
IC111	PSVIPS600CMT	IC	S
IC112	PQVINJM4558M	IC	S
IC113	PQVINJM4558M	IC	S
IC114	PQVITC4066BF	IC	S
IC115	PQVITC7H04AF	IC	S
IC117	PQVIDS14C232	IC	S
IC120	PQVILC73872M	IC	S
IC121	PQVILC73872M	IC	S
IC122	PQVITC7S08FU	IC	S
IC123	PQVITC7S00FL	IC	S
IC124	PQVITC7SU04F	IC	S
IC130	PSVILC7366NM	IC	S
IC200A	PQVINJM4558M	IC	S
IC200B	PQVINJM4558M	IC	S
IC200C	PQVINJM4558M	IC	S
IC201A	PQVITC4066BF	IC	S
IC201B	PQVITC4066BF	IC	S
IC201C	PQVITC4066BF	IC	S
IC204	PQVITC4066BF	IC	S
IC205	PQVI92011556	IC	S
IC302	PQVITC4011BF	IC	S
IC303	PQVITC4051F	IC	S

IC304	PSVI008GBE65	IC	S
IC305	PQVI92011556	IC	S
IC400	PQVINJM4558M	IC	S
IC500	PSVIMT8816AP	IC	S
IC501	PSVIMT8806AP	IC	S
IC502	PSVIMT8806AP	IC	S
IC900	PQVINJM4558M	IC	S
		(TRANSISTORS)	
Q105	2SC4081Q	TRANSISTOR(SI)	S
Q133	UN5213	TRANSISTOR(SI)	S
Q200A	2SA1627	TRANSISTOR(SI)	S
Q200B	2SA1627	TRANSISTOR(SI)	S
Q200C	2SA1627	TRANSISTOR(SI)	S
Q203A	UN5213	TRANSISTOR(SI)	S
Q203B	UN5213	TRANSISTOR(SI)	S
Q203C	UN5213	TRANSISTOR(SI)	S
Q204A	UN5213	TRANSISTOR(SI)	S
Q204B	UN5213	TRANSISTOR(SI)	S
Q204C	UN5213	TRANSISTOR(SI)	S
Q205A	UN5213	TRANSISTOR(SI)	S
Q205B	UN5213	TRANSISTOR(SI)	S
Q205C	UN5213	TRANSISTOR(SI)	S
Q206A	UN5213	TRANSISTOR(SI)	S
Q206B	UN5213	TRANSISTOR(SI)	S
Q206C	UN5213	TRANSISTOR(SI)	S
Q207A	UN5213	TRANSISTOR(SI)	S
Q207B	UN5213	TRANSISTOR(SI)	S
Q207C	UN5213	TRANSISTOR(SI)	S
Q208A	2SC4731	TRANSISTOR(SI)	
Q208B	2SC4731	TRANSISTOR(SI)	
Q208C	2SC4731	TRANSISTOR(SI)	
Q209	PQVTDTC143E	TRANSISTOR(SI)	S
Q210A	PQVTDTA124XU	TRANSISTOR(SI)	S
Q210B	PQVTDTA124XU	TRANSISTOR(SI)	S
Q210C	PQVTDTA124XU	TRANSISTOR(SI)	S
Q301A	2SD1994A	TRANSISTOR(SI)	
Q301B	2SD1994A	TRANSISTOR(SI)	
Q301C	2SD1994A	TRANSISTOR(SI)	

Q301D	2SD1994A	TRANSISTOR(SI)	
Q301E	2SD1994A	TRANSISTOR(SI)	
Q301F	2SD1994A	TRANSISTOR(SI)	
Q301G	2SD1994A	TRANSISTOR(SI)	
Q301H	2SD1994A	TRANSISTOR(SI)	
Q304A	2SB1322	TRANSISTOR(SI)	
Q304B	2SB1322	TRANSISTOR(SI)	
Q304C	2SB1322	TRANSISTOR(SI)	
Q304D	2SB1322	TRANSISTOR(SI)	
Q304E	2SB1322	TRANSISTOR(SI)	
Q304F	2SB1322	TRANSISTOR(SI)	
Q304G	2SB1322	TRANSISTOR(SI)	
Q304H	2SB1322	TRANSISTOR(SI)	
Q305A	2SC4081Q	TRANSISTOR(SI)	S
Q305B	2SC4081Q	TRANSISTOR(SI)	S
Q305C	2SC4081Q	TRANSISTOR(SI)	S
Q305D	2SC4081Q	TRANSISTOR(SI)	S
Q305E	2SC4081Q	TRANSISTOR(SI)	S
Q305F	2SC4081Q	TRANSISTOR(SI)	S
Q305G	2SC4081Q	TRANSISTOR(SI)	S
Q305H	2SC4081Q	TRANSISTOR(SI)	S
Q306	2SC4081Q	TRANSISTOR(SI)	S
Q307A	PQVTDTC143E	TRANSISTOR(SI)	S
Q307B	PQVTDTC143E	TRANSISTOR(SI)	S
Q307C	PQVTDTC143E	TRANSISTOR(SI)	S
Q307D	PQVTDTC143E	TRANSISTOR(SI)	S
Q307E	PQVTDTC143E	TRANSISTOR(SI)	S
Q307F	PQVTDTC143E	TRANSISTOR(SI)	S
Q307G	PQVTDTC143E	TRANSISTOR(SI)	S
Q307H	PQVTDTC143E	TRANSISTOR(SI)	S
Q308	PQVTDTA143EU	TRANSISTOR(SI)	S
Q309	2SD2137	TRANSISTOR(SI)	
Q310	2SB1417P	TRANSISTOR(SI)	S
Q311	UN5213	TRANSISTOR(SI)	S
Q313A	2SA1576Q	TRANSISTOR(SI)	
Q313B	2SA1576Q	TRANSISTOR(SI)	
Q313C	2SA1576Q	TRANSISTOR(SI)	
Q313D	2SA1576Q	TRANSISTOR(SI)	
Q313E	2SA1576Q	TRANSISTOR(SI)	

Q313F	2SA1576Q	TRANSISTOR(SI)	
Q313G	2SA1576Q	TRANSISTOR(SI)	
Q313H	2SA1576Q	TRANSISTOR(SI)	
Q314	2SC4081Q	TRANSISTOR(SI)	S
Q500	UN5213	TRANSISTOR(SI)	S
Q501	UN5213	TRANSISTOR(SI)	S
Q502	UN5213	TRANSISTOR(SI)	S
Q503	UN5213	TRANSISTOR(SI)	S
Q504	UN5213	TRANSISTOR(SI)	S
		(DIODES)	
D100	MA4200	DIODE(SI)	S
D101	PQVDS5688G	DIODE(SI)	S
D102	PQVDS5688G	DIODE(SI)	S
D103	PQVDS5688G	DIODE(SI)	S
D104	PSVDML010LT	DIODE(SI)	S
D105	MA4062	DIODE(SI)	S
D200A	PQVDS1ZB60F1	DIODE(SI)	S
D200B	PQVDS1ZB60F1	DIODE(SI)	S
D200C	PQVDS1ZB60F1	DIODE(SI)	S
D201A	MA4020	DIODE(SI)	S
D201B	MA4020	DIODE(SI)	S
D201C	MA4020	DIODE(SI)	S
D202A	MA4020	DIODE(SI)	S
D202B	MA4020	DIODE(SI)	S
D202C	MA4020	DIODE(SI)	S
D204	MA110	DIODE(SI)	S
D210A	MA110	DIODE(SI)	S
D210B	MA110	DIODE(SI)	S
D210C	MA110	DIODE(SI)	S
D300A	PSVDUDZ36B	DIODE(SI)	S
D300B	PSVDUDZ36B	DIODE(SI)	S
D300C	PSVDUDZ36B	DIODE(SI)	S
D300D	PSVDUDZ36B	DIODE(SI)	S
D300E	PSVDUDZ36B	DIODE(SI)	S
D300F	PSVDUDZ36B	DIODE(SI)	S
D300G	PSVDUDZ36B	DIODE(SI)	S
D300H	PSVDUDZ36B	DIODE(SI)	S
D301A	PSVDUDZ36B	DIODE(SI)	S

D301B	PSVDUDZ36B	DIODE(SI)	S
D301C	PSVDUDZ36B	DIODE(SI)	S
D301D	PSVDUDZ36B	DIODE(SI)	S
D301E	PSVDUDZ36B	DIODE(SI)	S
D301F	PSVDUDZ36B	DIODE(SI)	S
D301G	PSVDUDZ36B	DIODE(SI)	S
D301H	PSVDUDZ36B	DIODE(SI)	S
D302A	PSVDUDZ20B	DIODE(SI)	S
D302B	PSVDUDZ20B	DIODE(SI)	S
D302C	PSVDUDZ20B	DIODE(SI)	S
D302D	PSVDUDZ20B	DIODE(SI)	S
D302E	PSVDUDZ20B	DIODE(SI)	S
D302F	PSVDUDZ20B	DIODE(SI)	S
D302G	PSVDUDZ20B	DIODE(SI)	S
D302H	PSVDUDZ20B	DIODE(SI)	S
D303A	PSVDUDZ20B	DIODE(SI)	S
D303B	PSVDUDZ20B	DIODE(SI)	S
D303C	PSVDUDZ20B	DIODE(SI)	S
D303D	PSVDUDZ20B	DIODE(SI)	S
D303E	PSVDUDZ20B	DIODE(SI)	S
D303F	PSVDUDZ20B	DIODE(SI)	S
D303G	PSVDUDZ20B	DIODE(SI)	S
D303H	PSVDUDZ20B	DIODE(SI)	S
D306A	MA110	DIODE(SI)	S
D306B	MA110	DIODE(SI)	S
D306C	MA110	DIODE(SI)	S
D306D	MA110	DIODE(SI)	S
D306E	MA110	DIODE(SI)	S
D306F	MA110	DIODE(SI)	S
D306G	MA110	DIODE(SI)	S
D306H	MA110	DIODE(SI)	S
D307A	MA110	DIODE(SI)	S
D307B	MA110	DIODE(SI)	S
D307C	MA110	DIODE(SI)	S
D307D	MA110	DIODE(SI)	S
D307E	MA110	DIODE(SI)	S
D307F	MA110	DIODE(SI)	S
D307G	MA110	DIODE(SI)	S
D307H	MA110	DIODE(SI)	S

D308A	MA110	DIODE(SI)	S
D308B	MA110	DIODE(SI)	S
D308C	MA110	DIODE(SI)	S
D308D	MA110	DIODE(SI)	S
D308E	MA110	DIODE(SI)	S
D308F	MA110	DIODE(SI)	S
D308G	MA110	DIODE(SI)	S
D308H	MA110	DIODE(SI)	S
D310A	MA110	DIODE(SI)	S
D310B	MA110	DIODE(SI)	S
D310C	MA110	DIODE(SI)	S
D310D	MA110	DIODE(SI)	S
D310E	MA110	DIODE(SI)	S
D310F	MA110	DIODE(SI)	S
D310G	MA110	DIODE(SI)	S
D310H	MA110	DIODE(SI)	S
D391	1SS133	DIODE(SI)	S
D393	MA110	DIODE(SI)	S
D394	MA110	DIODE(SI)	S
D400	MA4020	DIODE(SI)	S
D401	MA4020	DIODE(SI)	S
D404	MA700A	DIODE(SI)	S
D405	MA110	DIODE(SI)	S
D406	MA110	DIODE(SI)	S
		(BATTERY)	
BAT1	PSPCR2032H09	LITHIUME BATTERY	S
		(CONNECTORS AND JACKS)	
CN1	PQJP7D68Z	CONNECTOR, 7P	S
CN5	PQJP50A09Z	CONNECTOR, 50P	S
CN6	PSJP26A62Z	CONNECTOR, 26P	
CN7	PSJP09A64Z	CONNECTOR, 9P	S
CN9	PSJJ1D001Z	JACK, PAG/BGM	S
CN10A	PQJJ1T004Z	JACK, TEL	S
CN10B	PQJJ1T004Z	JACK, TEL	S
CN10C	PQJJ1T004Z	JACK, TEL	S
CN11	PSJJ1D001Z	JACK, PAG/BGM	S
CN30A	PQJJ1T011Y	JACK, TEL	S

CN30B	PQJJ1T011Y	JACK, TEL	S
CN30C	PQJJ1T011Y	JACK, TEL	S
CN30D	PQJJ1T011Y	JACK, TEL	S
CN30E	PQJJ1T011Y	JACK, TEL	S
CN30F	PQJJ1T011Y	JACK, TEL	S
CN30G	PQJJ1T011Y	JACK, TEL	S
CN30H	PQJJ1T011Y	JACK, TEL	S
		(CAPACITORS)	
C100	EECW0HS473Z	0.047	S
C101	ECUV1H150JCV	15P	
C104	ECUV1H223KBV	0.022	S
C105	ECUV1H223KBV	0.022	S
C106	ECUV1H223KBV	0.022	S
C107	ECEA1HN3R3S	3.3	S
C108	ECUV1E104KBV	0.1	
C109	ECEA1HKS2R2	2.2	S
C112	ECUV1H150JCV	15P	
C113	ECUV1H102KBV	0.001	
C114	ECUV1E104KBV	0.1	
C115	ECUV1H223KBV	0.022	S
C116	ECUV1E104KBV	0.1	
C117	ECUV1H223KBV	0.022	S
C118	ECUV1H223KBV	0.022	S
C119	ECUV1H223KBV	0.022	S
C120	PQCUV1E823KB	0.082	
C121	PQCUV1E823KB	0.082	
C122	ECUV1E104KBV	0.1	
C123	ECEA1HKS4R7	4.7	S
C124	ECEA1HKS4R7	4.7	S
C126	ECEA1HKS4R7	4.7	S
C127	ECEA1HKS4R7	4.7	S
C128	ECUV1H270JCV	27P	
C129	ECUV1H223KBV	0.022	S
C130	ECUV1E104KBV	0.1	
C131	ECUV1E104KBV	0.1	
C132	ECUV1H223KBV	0.022	S
C133	ECUV1E104KBV	0.1	
C134	ECUV1H223KBV	0.022	S

C135	ECUV1E104KBV	0.1	
C137	ECUV1H223KBV	0.022	S
C140	ECUV1H223KBV	0.022	S
C141	ECUV1H223KBV	0.022	S
C142	ECUV1H223KBV	0.022	S
C143	ECUV1H223KBV	0.022	S
C144	ECUV1H223KBV	0.022	S
C145	ECUV1H223KBV	0.022	S
C146	ECUV1H223KBV	0.022	S
C148	ECUV1H223KBV	0.022	S
C149	ECUV1H223KBV	0.022	S
C150	ECEA1HU330	33	S
C151	ECEA1HU330	33	S
C155	ECEA1EU101	100	S
C157	ECEA1HU330	33	S
C158	ECUV1E104KBV	0.1	
C200A	ECQE2E105KZ	1	S
C200B	ECQE2E105KZ	1	S
C200C	ECQE2E105KZ	1	S
C202A	ECEA1HKS100	10	S
C202B	ECEA1HKS100	10	S
C202C	ECEA1HKS100	10	S
C203A	ECEA1HKS2R2	2.2	S
C203B	ECEA1HKS2R2	2.2	S
C203C	ECEA1HKS2R2	2.2	S
C204A	ECUV1C683KBV	0.068	
C204B	ECUV1C683KBV	0.068	
C204C	ECUV1C683KBV	0.068	
C205A	PQCUV1H563KB	0.056	S
C205B	PQCUV1H563KB	0.056	S
C205C	PQCUV1H563KB	0.056	S
C206A	PQCUV1H563KB	0.056	S
C206B	PQCUV1H563KB	0.056	S
C206C	PQCUV1H563KB	0.056	S
C207A	ECUV1H101JCV	100P	
C207B	ECUV1H101JCV	100P	
C207C	ECUV1H101JCV	100P	
C210A	PQCUV1H563KB	0.056	S
C210B	PQCUV1H563KB	0.056	S

C210C	PQCUV1H563KB	0.056	S
C211A	PQCUV1H563KB	0.056	S
C211B	PQCUV1H563KB	0.056	S
C211C	PQCUV1H563KB	0.056	S
C212A	ECUV1H101JCV	100P	
C212B	ECUV1H101JCV	100P	
C212C	ECUV1H101JCV	100P	
C220A	ECKDKC221MD	220P	S
C220B	ECKDKC221MD	220P	S
C220C	ECKDKC221MD	220P	S
C221A	ECUV1H102KBV	0.001	
C221B	ECUV1H102KBV	0.001	
C221C	ECUV1H102KBV	0.001	
C223A	ECUV1H101JCV	100P	
C223B	ECUV1H101JCV	100P	
C223C	ECUV1H101JCV	100P	
C224A	ECUV1H101JCV	100P	
C224B	ECUV1H101JCV	100P	
C224C	ECUV1H101JCV	100P	
C241A	ECEA1HKS010	1	S
C241B	ECEA1HKS010	1	S
C241C	ECEA1HKS010	1	S
C242A	ECEA1HKS010	1	S
C242B	ECEA1HKS010	1	S
C242C	ECEA1HKS010	1	S
C280	ECUV1H223KBV	0.022	S
C281	ECUV1H223KBV	0.022	S
C282	ECUV1C333KBV	0.033	
C290A	ECUV1H223KBV	0.022	S
C290B	ECUV1H223KBV	0.022	S
C290C	ECUV1H223KBV	0.022	S
C291A	ECUV1H223KBV	0.022	S
C291B	ECUV1H223KBV	0.022	S
C291C	ECUV1H223KBV	0.022	S
C294	ECUV1H223KBV	0.022	S
C300	ECUV1H223KBV	0.022	S
C314A	ECUV1E393KBV	0.039	
C314B	ECUV1E393KBV	0.039	
C314C	ECUV1E393KBV	0.039	

C314D	ECUV1E393KBV	0.039	
C314E	ECUV1E393KBV	0.039	
C314F	ECUV1E393KBV	0.039	
C314G	ECUV1E393KBV	0.039	
C314H	ECUV1E393KBV	0.039	
C320A	PQCUV1H223KB	0.022	
C320B	PQCUV1H223KB	0.022	
C320C	PQCUV1H223KB	0.022	
C320D	PQCUV1H223KB	0.022	
C320E	PQCUV1H223KB	0.022	
C320F	PQCUV1H223KB	0.022	
C320G	PQCUV1H223KB	0.022	
C320H	PQCUV1H223KB	0.022	
C321A	PQCUV1H223KB	0.022	
C321B	PQCUV1H223KB	0.022	
C321C	PQCUV1H223KB	0.022	
C321D	PQCUV1H223KB	0.022	
C321E	PQCUV1H223KB	0.022	
C321F	PQCUV1H223KB	0.022	
C321G	PQCUV1H223KB	0.022	
C321H	PQCUV1H223KB	0.022	
C322A	ECA2AM2R2	2.2	
C322B	ECA2AM2R2	2.2	
C322C	ECA2AM2R2	2.2	
C322D	ECA2AM2R2	2.2	
C324A	ECEA1HKS010	1	S
C324B	ECEA1HKS010	1	S
C324C	ECEA1HKS010	1	S
C324D	ECEA1HKS010	1	S
C324E	ECEA1HKS010	1	S
C324F	ECEA1HKS010	1	S
C324G	ECEA1HKS010	1	S
C324H	ECEA1HKS010	1	S
C325	ECEA1HKS010	1	S
C326	PQCUV1H333JC	0.033	S
C328	ECUV1H223KBV	0.022	S
C329	ECUV1H101JCV	100P	
C330	ECUV1H223KBV	0.022	S
C331	ECUV1H223KBV	0.022	S

C333	ECUV1H150JCV	15P	
C334	ECUV1H150JCV	15P	
C335	ECEA1HKS010	1	S
C400	ECEA1HN010S	1	S
C401	ECEA1HN010S	1	S
C402	ECEA1HN010S	1	S
C403	ECEA1HN010S	1	S
C406	ECUV1E104KBV	0.1	
C407	ECUV1H103KBV	0.01	
C500	ECUV1H223KBV	0.022	S
C501	ECUV1H223KBV	0.022	S
C502	ECUV1H223KBV	0.022	S
C521	PQCUV1H223KB	0.022	
C522	PQCUV1H223KB	0.022	
C523	PQCUV1H223KB	0.022	
C524	PQCUV1H223KB	0.022	
C900	ECUV1C683KBV	0.068	
C901	ECUV1E104KBV	0.1	
C902	ECUV1H682KBV	0.0068	S
C903	ECUV1E473KBV	0.047	
C904	ECUV1E104KBV	0.1	
C905	ECUV1H332KBV	0.0033	
C908	ECUV1H152KBV	0.0015	
C910	ECUV1E104KBV	0.1	
L101	PQVFTU50MT	CERAMIC FILTER	
L102	PQVFTU50MT	CERAMIC FILTER	
L103	PQVFTU50MT	CERAMIC FILTER	
L104	PQVFTU50MT	CERAMIC FILTER	
		(COILS)	
L110	PQLQR1RM601	COIL	S
L111	PQLQR1RM601	COIL	S
L112	PQLQR1RM601	COIL	S
L113	PQLQR1RM601	COIL	S
L114	PQLQR1RM601	COIL	S
L115	PQLQR1RM601	COIL	S
L116	PQLQR1RM601	COIL	S

L117	PQLQR1RM601	COIL	S
L118	PQLQR1RM601	COIL	S
L200A	PQLE106	COIL	S
L200B	PQLE106	COIL	S
L200C	PQLE106	COIL	S
L201A	PQLE106	COIL	S
L201B	PQLE106	COIL	S
L201C	PQLE106	COIL	S
L202A	PQLE106	COIL	S
L202B	PQLE106	COIL	S
L202C	PQLE106	COIL	S
L203A	PQLE106	COIL	S
L203B	PQLE106	COIL	S
L203C	PQLE106	COIL	S
L204A	PQLQZK121K	COIL	S
L204B	PQLQZK121K	COIL	S
L204C	PQLQZK121K	COIL	S
L205A	PQLQZK121K	COIL	S
L205B	PQLQZK121K	COIL	S
L205C	PQLQZK121K	COIL	S
L300A	PQLE106	COIL	S
L300B	PQLE106	COIL	S
L300C	PQLE106	COIL	S
L300D	PQLE106	COIL	S
L300E	PQLE106	COIL	S
L300F	PQLE106	COIL	S
L300G	PQLE106	COIL	S
L300H	PQLE106	COIL	S
L301A	PQLE106	COIL	S
L301B	PQLE106	COIL	S
L301C	PQLE106	COIL	S
L301D	PQLE106	COIL	S
L301E	PQLE106	COIL	S
L301F	PQLE106	COIL	S
L301G	PQLE106	COIL	S
L301H	PQLE106	COIL	S
L305A	PQLQXH152J	COIL	S
L305B	PQLQXH152J	COIL	S
L305C	PQLQXH152J	COIL	S

L305D	PQLQXH152J	COIL	S
L305E	PQLQXH152J	COIL	S
L305F	PQLQXH152J	COIL	S
L305G	PQLQXH152J	COIL	S
L305H	PQLQXH152J	COIL	S
R107	PQLQR1RM601	COIL	S
R108	PQLQR1RM601	COIL	S
R109	PQLQR1RM601	COIL	S
R111	PQLQR1RM601	COIL	S
R113	PQLQR1RM601	COIL	S
R114	PQLQR1RM601	COIL	S
R116	PQLQR1RM601	COIL	S
R117	PQLQR1RM601	COIL	S
R118	PQLQR1RM601	COIL	S
R119	PQLQR1RM601	COIL	S
R120	PQLQR1RM601	COIL	S
R121	PQLQR1RM601	COIL	S
R122	PQLQR1RM601	COIL	S
R126	PQLQR1RM601	COIL	S
R127	PQLQR1RM601	COIL	S
R128	PQLQR1RM601	COIL	S
R129	PQLQR1RM601	COIL	S
		(PHOTO ELECTRIC TRANSDUCERS)	
PC200A	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC200B	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC200C	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC201A	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC201B	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC201C	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC204A	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC204B	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC204C	PQVIPC357CN	PHOTO COUPLER	⚠ S
PC202A	PQVITLP127	PHOTO COUPLER	⚠ S
PC202B	PQVITLP127	PHOTO COUPLER	⚠ S

PC202C	PQVITLP127	PHOTO COUPLER	⚠ S
		(RELAYS)	
RLY20A	PQSL49Z	RELAY	S
RLY30A	PSSLFTB124Z	RELAY	
RLY30B	PSSLFTB124Z	RELAY	
RLY30C	PSSLFTB124Z	RELAY	
RLY30D	PSSLFTB124Z	RELAY	
RLY30E	PSSLFTB124Z	RELAY	
RLY30F	PSSLFTB124Z	RELAY	
RLY30G	PSSLFTB124Z	RELAY	
RLY30H	PSSLFTB124Z	RELAY	
		(RESISITORS)	
J110	PQ4R10XJ000	0	S
J111	PQ4R10XJ000	0	S
J112	PQ4R10XJ000	0	S
J113	ERJ3GEY0R00	0	
J114	PQ4R10XJ000	0	S
J116	PQ4R10XJ000	0	S
J119	ERJ3GEYJ0R00	0	
J122	ERJ3GEYJ0R00	0	
J123	ERJ3GEYJ0R00	0	
J124	ERJ3GEYJ0R00	0	
J125	ERJ3GEYJ0R00	0	
J126	ERJ3GEYJ0R00	0	
J127	ERJ3GEYJ0R00	0	
J128	ERJ3GEYJ0R00	0	
J129	ERJ3GEYJ0R00	0	
J130	ERJ3GEYJ0R00	0	
J300	PQ4R10XJ000	0	S
L119	ERJ3GEYJ390	0	
L120	ERJ3GEYJ390	0	
L121	ERJ3GEYJ390	0	
L122	ERJ3GEYJ390	0	
L302A	ERG1SJ180	0	
L302B	ERG1SJ180	0	
L302C	ERG1SJ180	0	

L302D	ERG1SJ180	0	
L302E	ERG1SJ180	0	
L302F	ERG1SJ180	0	
L302G	ERG1SJ180	0	
L302H	ERG1SJ180	0	
L303A	ERG1SJ180	0	
L303B	ERG1SJ180	0	
L303C	ERG1SJ180	0	
L303D	ERG1SJ180	0	
L303E	ERG1SJ180	0	
L303F	ERG1SJ180	0	
L303G	ERG1SJ180	0	
L303H	ERG1SJ180	0	
R14	ERJ3GEYJ103	10k	
R15	ERJ3GEYJ103	10k	
R16	ERJ3GEYJ103	10k	
R19	ERJ3GEYJ473	47k	
R20	ERJ3GEYJ473	47k	
R21	ERJ3GEYJ473	47k	
R22	ERJ3GEYJ473	47k	
R25	ERJ3GEYJ473	47k	
R26	ERJ3GEYJ473	47k	
R27	ERJ3GEYJ473	47k	
R28	ERJ3GEYJ473	47k	
R29	ERJ3GEYJ473	47k	
R30	ERJ3GEYJ331	330	
R31	ERJ3GEYJ331	330	
R32	ERJ3GEYJ331	330	
R33	ERJ3GEYJ331	330	
R34	ERJ3GEYJ331	330	
R35	ERJ3GEYJ331	330	
R36	ERJ3GEYJ331	330	
R37	ERJ3GEYJ331	330	
R38	ERJ3GEYJ331	330	
R39	ERJ3GEYJ331	330	
R40	ERJ3GEYJ331	330	
R41	ERJ3GEYJ331	330	
R42	ERJ3GEYJ331	330	
R43	ERJ3GEYJ331	330	

R44	ERJ3GEYJ331	330	
R45	ERJ3GEYJ331	330	
R46	ERJ3GEYJ473	47k	
R47	ERJ3GEYJ473	47k	
R48	ERJ3GEYJ473	47k	
R51	ERJ3GEYJ390	39	
R52	ERJ3GEYJ390	39	
R53	ERJ3GEYJ390	39	
R54	ERJ3GEYJ390	39	
R55	ERJ3GEYJ390	39	
R56	ERJ3GEYJ390	39	
R57	ERJ3GEYJ390	39	
R58	ERJ3GEYJ390	39	
R59	ERJ3GEYJ390	39	
R60	ERJ3GEYJ390	39	
R61	ERJ3GEYJ390	39	
R62	ERJ3GEYJ473	47k	
R63	ERJ3GEYJ473	47k	
R64	ERJ3GEYJ473	47k	
R65	ERJ3GEYJ473	47k	
R66	ERJ3GEYJ473	47k	
R67	ERJ3GEYJ473	47k	
R68	ERJ3GEYJ473	47k	
R69	ERJ3GEYJ473	47k	
R70	ERJ3GEYJ390	39	
R71	ERJ3GEYJ390	39	
R72	ERJ3GEYJ390	39	
R73	ERJ3GEYJ390	39	
R74	ERJ3GEYJ390	39	
R75	ERJ3GEYJ390	39	
R76	ERJ3GEYJ390	39	
R77	ERJ3GEYJ390	39	
R80	ERJ3GEYJ390	39	
R81	ERJ3GEYJ390	39	
R82	ERJ3GEYJ390	39	
R83	ERJ3GEYJ390	39	
R84	ERJ3GEYJ390	39	
R85	ERJ3GEYJ390	39	
R86	ERJ3GEYJ390	39	

R87	ERJ3GEYJ390	39	
R88	ERJ3GEYJ390	39	
R90	ERJ3GEYJ331	330	
R91	ERJ3GEYJ331	330	
R92	ERJ3GEYJ331	330	
R93	ERJ3GEYJ331	330	
R94	ERJ3GEYJ331	330	
R95	ERJ3GEYJ331	330	
R96	ERJ3GEYJ331	330	
R97	ERJ3GEYJ331	330	
R98	ERJ3GEYJ331	330	
R99	ERJ3GEYJ331	330	
R100	ERJ3GEYJ331	330	
R101	ERJ3GEYJ331	330	
R102	ERJ3GEYJ331	330	
R103	ERJ3GEYJ331	330	
R104	ERJ3GEYJ103	10k	
R105	ERJ3GEYJ103	10k	
R106	ERJ3GEYJ103	10k	
R110	ERJ3GEYJ331	330	
R112	ERJ3GEYJ105	1M	
R115	ERJ3GEYJ151	150	
R123	ERJ3GEYJ390	39	
R124	ERJ3GEYJ390	39	
R125	ERJ3GEYJ390	39	
R130	ERJ3GEYJ103	10k	
R131	ERJ3GEYJ103	10k	
R132	ERJ3GEYJ103	10k	
R133	ERJ3GEYJ390	39	
R134	ERJ3GEYJ390	39	
R136	ERJ3GEYJ103	10k	
R137	ERJ3GEYJ390	39	
R138	ERJ3GEYJ103	10k	
R139	ERJ3GEYJ183	18k	
R140	PQ4R10XJ102	1k	S
R141	ERJ3GEYJ472	4.7k	
R142	ERJ3GEYJ223	22k	
R143	ERJ3GEYJ683	68k	
R144	ERJ3GEYJ273	27k	

R145	ERJ3GEYJ473	47k	
R146	ERJ3GEYJ333	33k	
R147	PQ4R10XJ394	390k	S
R148	ERJ3GEYJ203	20k	
R149	ERJ3GEYJ184	180k	
R150	PQ4R10XJ272	2.7k	S
R151	PQ4R10XJ271	270	S
R152	ERG2SJ101	100	S
R153	ERJ3GEYJ390	39	
R154	ERJ3GEYJ390	39	
R155	ERJ3GEYJ390	39	
R156	ERJ3GEYJ390	39	
R157	ERJ3GEY0R00	0	
R159	ERJ3GEYJ104	100k	
R160	PQ4R10XJ104	100k	S
R161	ERJ3GEYJ473	47k	
R162	ERJ3GEYJ473	47k	
R163	ERJ3GEYJ473	47k	
R164	ERJ3GEYJ103	10k	
R165	ERJ3GEYJ473	47k	
R166	ERJ3GEYJ473	47k	
R167	ERJ3GEYJ473	47k	
R168	ERJ3GEYJ473	47k	
R170	ERJ3GEYJ390	39	
R171	ERJ3GEYJ390	39	
R172	ERJ3GEYJ390	39	
R173	ERJ3GEYJ390	39	
R174	ERJ3GEYJ390	39	
R175	ERJ3GEYJ390	39	
R176	ERJ3GEYJ390	39	
R177	ERJ3GEYJ390	39	
R178	ERJ3GEYJ390	39	
R179	ERJ3GEYJ390	39	
R180	ERJ3GEYJ390	39	
R181	ERJ3GEYJ390	39	
R182	ERJ3GEYJ390	39	
R183	ERJ3GEYJ390	39	
R184	ERJ3GEYJ390	39	
R185	ERJ3GEYJ390	39	

R186	ERJ3GEYJ390	39	
R187	ERJ3GEYJ390	39	
R188	ERJ3GEYJ390	39	
R189	ERJ3GEYJ390	39	
R190	ERJ3GEYJ390	39	
R191	ERJ3GEYJ390	39	
R192	PQ4R10XJ104	100k	S
R193	PQ4R10XJ104	100k	S
R194	ERJ3GEYJ473	47k	
R195	ERJ3GEYJ473	47k	
R196	ERJ3GEYJ473	47k	
R197	ERJ3GEYJ390	39	
R198	ERJ3GEYJ390	39	
R199	ERJ3GEYJ390	39	
R200A	PQRD12VJ273	27k	
R200B	PQRD12VJ273	27k	
R200C	PQRD12VJ273	27k	
R201A	PQ4R10XJ122	1.2k	S
R201B	PQ4R10XJ122	1.2k	S
R201C	PQ4R10XJ122	1.2k	S
R202A	PQ4R10XJ104	100k	S
R202B	PQ4R10XJ104	100k	S
R202C	PQ4R10XJ104	100k	S
R203A	ERDS2TJ472	4.7k	
R203B	ERDS2TJ472	4.7k	
R203C	ERDS2TJ472	4.7k	
R205A	ERDS2TJ220	22	S
R205B	ERDS2TJ220	22	S
R205C	ERDS2TJ220	22	S
R206A	PQ4R10XJ153	15k	S
R206B	PQ4R10XJ153	15k	S
R206C	PQ4R10XJ153	15k	S
R207A	PQ4R10XJ123	12k	S
R207B	PQ4R10XJ123	12k	S
R207C	PQ4R10XJ123	12k	S
R208A	PQRD12VJ390	39	S
R208B	PQRD12VJ390	39	S
R208C	PQRD12VJ390	39	S
R210A	PQ4R10XJ101	100	S

R210B	PQ4R10XJ101	100	S
R210C	PQ4R10XJ101	100	S
R211A	PQ4R10XJ392	3.9k	S
R211B	PQ4R10XJ392	3.9k	S
R211C	PQ4R10XJ392	3.9k	S
R212A	ERJ3GEYJ122	1.2k	
R212B	ERJ3GEYJ122	1.2k	
R212C	ERJ3GEYJ122	1.2k	
R213A	ERJ3GEYJ122	1.2k	
R213B	ERJ3GEYJ122	1.2k	
R213C	ERJ3GEYJ122	1.2k	
R214A	PQ4R10XJ391	390	S
R214B	PQ4R10XJ391	390	S
R214C	PQ4R10XJ391	390	S
R215A	PQ4R10XJ102	1k	S
R215B	PQ4R10XJ102	1k	S
R215C	PQ4R10XJ102	1k	S
R216A	ERJ3GEYJ104	100k	
R216B	ERJ3GEYJ104	100k	
R216C	ERJ3GEYJ104	100k	
R217A	ERJ3GEYJ104	100k	
R217B	ERJ3GEYJ104	100k	
R217C	ERJ3GEYJ104	100k	
R218A	PQ4R10XF3003	300k	S
R218B	PQ4R10XF3003	300k	S
R218C	PQ4R10XF3003	300k	S
R219A	PQ4R10XF3003	300k	S
R219B	PQ4R10XF3003	300k	S
R219C	PQ4R10XF3003	300k	S
R220A	PQ4R10XF3003	300k	
R220B	PQ4R10XF3003	300k	
R220C	PQ4R10XF3003	300k	
R221A	ERJ3GEYJ122	1.2k	
R221B	ERJ3GEYJ122	1.2k	
R221C	ERJ3GEYJ122	1.2k	
R222A	ERJ3GEYJ122	1.2k	
R222B	ERJ3GEYJ122	1.2k	
R222C	ERJ3GEYJ122	1.2k	
R223A	ERJ3GEYJ122	1.2k	

R223B	ERJ3GEYJ122	1.2k	
R223C	ERJ3GEYJ122	1.2k	
R224A	ERJ3GEYJ471	470	
R224B	ERJ3GEYJ471	470	
R224C	ERJ3GEYJ471	470	
R225A	ERJ3GEY0R00	0	
R225B	ERJ3GEY0R00	0	
R225C	ERJ3GEY0R00	0	
R226A	ERJ3GEYJ122	1.2k	
R226B	ERJ3GEYJ122	1.2k	
R226C	ERJ3GEYJ122	1.2k	
R227A	ERJ3GEYJ104	100k	
R227B	ERJ3GEYJ104	100k	
R227C	ERJ3GEYJ104	100k	
R228A	PQ4R10XJ104	100k	S
R228B	PQ4R10XJ104	100k	S
R228C	PQ4R10XJ104	100k	S
R229A	PQ4R10XF3003	300k	S
R229B	PQ4R10XF3003	300k	S
R229C	PQ4R10XF3003	300k	S
R235A	ERJ3GEYJ684	680k	
R235B	ERJ3GEYJ684	680k	
R235C	ERJ3GEYJ684	680k	
R236A	ERJ3GEY0R00	0	
R236B	ERJ3GEY0R00	0	
R236C	ERJ3GEY0R00	0	
R237A	ERJ3GEY0R00	0	
R237B	ERJ3GEY0R00	0	
R237C	ERJ3GEY0R00	0	
R238A	PQ4R10XJ000	0	S
R238B	PQ4R10XJ000	0	S
R238C	PQ4R10XJ000	0	S
R239A	PQ4R10XJ000	0	S
R239B	PQ4R10XJ000	0	S
R239C	PQ4R10XJ000	0	S
R241A	ERJ3GEYJ681	680	
R241B	ERJ3GEYJ681	680	
R241C	ERJ3GEYJ681	680	
R242A	ERJ3GEYJ223	22k	

R242B	ERJ3GEYJ223	22k	
R242C	ERJ3GEYJ223	22k	
R243A	ERJ3GEYJ223	22k	
R243B	ERJ3GEYJ223	22k	
R243C	ERJ3GEYJ223	22k	
R252A	ERJ3GEYJ473	47k	
R252B	ERJ3GEYJ473	47k	
R252C	ERJ3GEYJ473	47k	
R253A	ERJ3GEYJ473	47k	
R253B	ERJ3GEYJ473	47k	
R253C	ERJ3GEYJ473	47k	
R254A	ERJ3GEYJ473	47k	
R254B	ERJ3GEYJ473	47k	
R254C	ERJ3GEYJ473	47k	
R255A	ERJ3GEYJ473	47k	
R255B	ERJ3GEYJ473	47k	
R255C	ERJ3GEYJ473	47k	
R256A	ERJ3GEYJ473	47k	
R256B	ERJ3GEYJ473	47k	
R256C	ERJ3GEYJ473	47k	
R260A	PQ4R10XJ000	0	S
R260B	PQ4R10XJ000	0	S
R260C	PQ4R10XJ000	0	S
R261A	PQ4R10XJ000	0	S
R261B	PQ4R10XJ000	0	S
R261C	PQ4R10XJ000	0	S
R262A	PQ4R10XJ000	0	S
R262B	PQ4R10XJ000	0	S
R262C	PQ4R10XJ000	0	S
R263A	PQ4R10XJ000	0	S
R263B	PQ4R10XJ000	0	S
R263C	PQ4R10XJ000	0	S
R264	ERJ3GEYJ473	47k	
R265	ERJ3GEYJ473	47k	
R266	ERJ3GEYJ473	47k	
R267	ERJ3GEYJ473	47k	
R268	ERJ3GEYJ473	47k	
R269	ERJ3GEYJ473	47k	
R270	ERJ3GEYJ473	47k	

R271	ERJ3GEYJ473	47k	
R272	ERJ3GEYJ473	47k	
R273A	ERJ3GEYJ473	47k	
R273B	ERJ3GEYJ473	47k	
R273C	ERJ3GEYJ473	47k	
R274	ERJ3GEYJ473	47k	
R276	ERJ3GEYJ331	330	
R280	ERJ3GEYJ331	330	
R281	ERJ3GEYJ331	330	
R282	ERJ3GEYJ331	330	
R283	ERJ3GEYJ331	330	
R284	ERJ3GEYJ331	330	
R285	ERJ3GEYJ331	330	
R286	ERJ3GEYJ331	330	
R287	ERJ3GEYJ331	330	
R288	ERJ3GEYJ331	330	
R301A	PQ4R10XJ470	47	S
R301B	PQ4R10XJ470	47	S
R301C	PQ4R10XJ470	47	S
R301D	PQ4R10XJ470	47	S
R301E	PQ4R10XJ470	47	S
R301F	PQ4R10XJ470	47	S
R301G	PQ4R10XJ470	47	S
R301H	PQ4R10XJ470	47	S
R302A	PQ4R10XJ103	10k	S
R302B	PQ4R10XJ103	10k	S
R302C	PQ4R10XJ103	10k	S
R302D	PQ4R10XJ103	10k	S
R302E	PQ4R10XJ103	10k	S
R302F	PQ4R10XJ103	10k	S
R302G	PQ4R10XJ103	10k	S
R302H	PQ4R10XJ103	10k	S
R303A	PQ4R10XJ470	47	S
R303B	PQ4R10XJ470	47	S
R303C	PQ4R10XJ470	47	S
R303D	PQ4R10XJ470	47	S
R303E	PQ4R10XJ470	47	S
R303F	PQ4R10XJ470	47	S
R303G	PQ4R10XJ470	47	S

R303H	PQ4R10XJ470	47	S
R304A	PQ4R10XJ682	6.8k	S
R304B	PQ4R10XJ682	6.8k	S
R304C	PQ4R10XJ682	6.8k	S
R304D	PQ4R10XJ682	6.8k	S
R304E	PQ4R10XJ682	6.8k	S
R304F	PQ4R10XJ682	6.8k	S
R304G	PQ4R10XJ682	6.8k	S
R304H	PQ4R10XJ682	6.8k	S
R305A	PQ4R10XJ563	56k	S
R305B	PQ4R10XJ563	56k	S
R305C	PQ4R10XJ563	56k	S
R305D	PQ4R10XJ563	56k	S
R305E	PQ4R10XJ563	56k	S
R305F	PQ4R10XJ563	56k	S
R305G	PQ4R10XJ563	56k	S
R305H	PQ4R10XJ563	56k	S
R306A	PQ4R10XJ273	27k	S
R306B	PQ4R10XJ273	27k	S
R306C	PQ4R10XJ273	27k	S
R306D	PQ4R10XJ273	27k	S
R306E	PQ4R10XJ273	27k	S
R306F	PQ4R10XJ273	27k	S
R306G	PQ4R10XJ273	27k	S
R306H	PQ4R10XJ273	27k	S
R310A	PQ4R10XJ103	10k	S
R310B	PQ4R10XJ103	10k	S
R310C	PQ4R10XJ103	10k	S
R310D	PQ4R10XJ103	10k	S
R310E	PQ4R10XJ103	10k	S
R310F	PQ4R10XJ103	10k	S
R310G	PQ4R10XJ103	10k	S
R310H	PQ4R10XJ103	10k	S
R311A	ERJ3GEYJ473	47k	
R311B	ERJ3GEYJ473	47k	
R311C	ERJ3GEYJ473	47k	
R311D	ERJ3GEYJ473	47k	
R311E	ERJ3GEYJ473	47k	
R311F	ERJ3GEYJ473	47k	

R311G	ERJ3GEYJ473	47k	
R311H	ERJ3GEYJ473	47k	
R312A	PQ4R10XJ331	330	S
R312B	PQ4R10XJ331	330	S
R312C	PQ4R10XJ331	330	S
R312D	PQ4R10XJ331	330	S
R312E	PQ4R10XJ331	330	S
R312F	PQ4R10XJ331	330	S
R312G	PQ4R10XJ331	330	S
R312H	PQ4R10XJ331	330	S
R313A	ERJ3GEYJ1R0	1	
R313B	ERJ3GEYJ1R0	1	
R313C	ERJ3GEYJ1R0	1	
R313D	ERJ3GEYJ1R0	1	
R313E	ERJ3GEYJ1R0	1	
R313F	ERJ3GEYJ1R0	1	
R313G	ERJ3GEYJ1R0	1	
R313H	ERJ3GEYJ1R0	1	
R315A	ERJ1WYJ102	1k	S
R315B	ERJ1WYJ102	1k	S
R315C	ERJ1WYJ102	1k	S
R315D	ERJ1WYJ102	1k	S
R315E	ERJ1WYJ102	1k	S
R315F	ERJ1WYJ102	1k	S
R315G	ERJ1WYJ102	1k	S
R315H	ERJ1WYJ102	1k	S
R316A	ERG2SJ820	82	
R316B	ERG2SJ820	82	
R316C	ERG2SJ820	82	
R316D	ERG2SJ820	82	
R316E	ERG2SJ820	82	
R316F	ERG2SJ820	82	
R316G	ERG2SJ820	82	
R316H	ERG2SJ820	82	
R317A	ERJ6GEYJ3R3	3.3	
R317B	ERJ6GEYJ3R3	3.3	
R317C	ERJ6GEYJ3R3	3.3	
R317D	ERJ6GEYJ3R3	3.3	
R317E	ERJ6GEYJ3R3	3.3	

R317F	ERJ6GEYJ3R3	3.3	
R317G	ERJ6GEYJ3R3	3.3	
R317H	ERJ6GEYJ3R3	3.3	
R319	ERJ3GEYJ473	47k	
R322	ERJ3GEYJ331	330	
R323	ERJ3GEYJ473	47k	
R324	ERJ3GEYJ473	47k	
R325	ERJ3GEYJ473	47k	
R326	ERJ3GEYJ473	47k	
R327	ERJ3GEYJ473	47k	
R328	ERJ3GEYJ473	47k	
R329	ERJ3GEYJ331	330	
R340A	ERDS2TJ680	68	S
R340B	ERDS2TJ680	68	S
R340C	ERDS2TJ680	68	S
R340D	ERDS2TJ680	68	S
R340E	ERDS2TJ680	68	S
R340F	ERDS2TJ680	68	S
R340G	ERDS2TJ680	68	S
R340H	ERDS2TJ680	68	S
R341A	ERDS2TJ680	68	S
R341B	ERDS2TJ680	68	S
R341C	ERDS2TJ680	68	S
R341D	ERDS2TJ680	68	S
R341E	ERDS2TJ680	68	S
R341F	ERDS2TJ680	68	S
R341G	ERDS2TJ680	68	S
R341H	ERDS2TJ680	68	S
R342A	PQ4R10XJ153	15k	S
R342B	PQ4R10XJ153	15k	S
R342C	PQ4R10XJ153	15k	S
R342D	PQ4R10XJ153	15k	S
R342E	PQ4R10XJ153	15k	S
R342F	PQ4R10XJ153	15k	S
R342G	PQ4R10XJ153	15k	S
R342H	PQ4R10XJ153	15k	S
R343	ERJ3GEYJ222	2.2k	
R344	ERJ3GEYJ472	4.7k	
R345	ERJ3GEYJ102	1k	

R346	ERJ3GEYJ103	10k	
R347	ERJ3GEYJ103	10k	
R348	ERJ3GEYJ101	100	
R350	ERJ3GEYJ473	47k	
R351	ERJ3GEYJ473	47k	
R352	ERJ3GEYJ473	47k	
R353	ERJ3GEYJ473	47k	
R356	ERJ3GEYJ105	1M	
R357	ERJ3GEYJ101	100	
R370	ERJ3GEYJ331	330	
R371	ERJ3GEYJ331	330	
R372	ERJ3GEYJ331	330	
R373	ERJ3GEYJ331	330	
R374	ERJ3GEYJ331	330	
R375	ERJ3GEYJ331	330	
R391	PQ4R10XJ563	56k	S
R392	PQ4R10XJ000	0	S
R394	ERJ3GEYJ273	27k	
R395	ERJ3GEYJ273	27k	
R398	ERJ3GEYJ473	47k	
R399	ERJ3GEYJ392	3.9k	
R401	ERJ3GEYJ682	6.8k	
R402	ERJ3GEYJ682	6.8k	
R404	PQ4R10XJ223	22k	S
R405	ERJ3GEY0R00	0	
R411	PQ4R10XJ681	680	S
R420	ERJ3GEYJ390	39	
R421	ERJ3GEYJ390	39	
R422	ERJ3GEYJ390	39	
R423	ERJ3GEYJ390	39	
R501	ERJ3GEYJ331	330	
R502	ERJ3GEYJ331	330	
R503	ERJ3GEYJ331	330	
R504	ERJ3GEYJ331	330	
R505	ERJ3GEYJ331	330	
R506	ERJ3GEYJ331	330	
R507	ERJ3GEYJ102	1k	
R508	ERJ3GEYJ102	1k	
R511	ERJ3GEYJ122	1.2k	

R512	ERJ3GEYJ122	1.2k	
R513	ERJ3GEYJ122	1.2k	
R514	ERJ3GEYJ122	1.2k	
R515	ERJ3GEYJ122	1.2k	
R516	ERJ3GEYJ122	1.2k	
R517	ERJ3GEYJ122	1.2k	
R518	ERJ3GEYJ122	1.2k	
R521	ERJ3GEYJ682	6.8k	
R522	ERJ3GEYJ682	6.8k	
R523	ERJ3GEYJ682	6.8k	
R524	ERJ3GEYJ682	6.8k	
R525	ERJ3GEY0R00	0	
R526	ERJ3GEY0R00	0	
R527	ERJ3GEY0R00	0	
R528	ERJ3GEY0R00	0	
R530	ERJ3GEYJ473	47k	
R531	ERJ3GEYJ473	47k	
R532	ERJ3GEYJ473	47k	
R533	ERJ3GEYJ473	47k	
R534	ERJ3GEYJ473	47k	
R535	ERJ3GEYJ223	22k	
R536	ERJ3GEYJ102	1k	
R537	ERJ3GEYJ333	33k	
R902	ERJ3GEYJ104	100k	
R903	ERJ3GEYJ104	100k	
R904	ERJ3GEYJ124	120k	
R905	ERJ3GEYJ224	220k	
R912	ERJ3GEYJ104	100k	
R913	ERJ3GEYJ104	100k	
R914	ERJ3GEYJ104	100k	
R919	ERJ3GEY0R00	0	
R920	ERJ3GEYJ123	12k	
R921	ERJ3GEYJ393	39k	
R922	ERJ3GEYJ472	4.7k	
R950	ERJ3GEYJ393	39k	
R951	ERJ3GEYJ273	27k	
R953	ERJ3GEYJ103	10k	
		(VARISTORS)	

SA1A	PSVDT83A230X	VARISTOR(SURGE ABSORBER)	S
SA1B	PSVDT83A230X	VARISTOR(SURGE ABSORBER)	S
SA1C	PSVDT83A230X	VARISTOR(SURGE ABSORBER)	S
SA2A	PQVDDSSV301Y	VARISTOR(SURGE ABSORBER)	S
SA2B	PQVDDSSV301Y	VARISTOR(SURGE ABSORBER)	S
SA2C	PQVDDSSV301Y	VARISTOR(SURGE ABSORBER)	S
SA3	PSVDRA102MS7	VARISTOR(SURGE ABSORBER)	S
ZNR20A	ERZC07DK820	VARISTOR	S
ZNR20B	ERZC07DK820	VARISTOR	S
ZNR20C	ERZC07DK820	VARISTOR	S
ZNR30A	PQVDNV039D03	VARISTOR	S
ZNR30B	PQVDNV039D03	VARISTOR	S
ZNR30C	PQVDNV039D03	VARISTOR	S
ZNR30D	PQVDNV039D03	VARISTOR	S
ZNR30E	PQVDNV039D03	VARISTOR	S
ZNR30F	PQVDNV039D03	VARISTOR	S
ZNR30G	PQVDNV039D03	VARISTOR	S
ZNR30H	PQVDNV039D03	VARISTOR	S
ZNR31A	PQVDNV039D03	VARISTOR	S
ZNR31B	PQVDNV039D03	VARISTOR	S
ZNR31C	PQVDNV039D03	VARISTOR	S
ZNR31D	PQVDNV039D03	VARISTOR	S
ZNR31E	PQVDNV039D03	VARISTOR	S
ZNR31F	PQVDNV039D03	VARISTOR	S
ZNR31G	PQVDNV039D03	VARISTOR	S
ZNR31H	PQVDNV039D03	VARISTOR	S
ZNR32A	PQVDNV039D03	VARISTOR	S
ZNR32B	PQVDNV039D03	VARISTOR	S
ZNR32C	PQVDNV039D03	VARISTOR	S
ZNR32D	PQVDNV039D03	VARISTOR	S
ZNR32E	PQVDNV039D03	VARISTOR	S
ZNR32F	PQVDNV039D03	VARISTOR	S
ZNR32G	PQVDNV039D03	VARISTOR	S
ZNR32H	PQVDNV039D03	VARISTOR	S
ZNR33	PQVDNV039D03	VARISTOR	S
		(SWICHES)	
SW1	EVQ21409K	SPECIAL SWITCH	
SW2	PQSS2A04W	SLIDE SWITCH	S

		(TRANSFORMERS)	
T200A	ETA14Y85AY	TRANSFORMER	⚠ S
T200B	ETA14Y85AY	TRANSFORMER	⚠ S
T200C	ETA14Y85AY	TRANSFORMER	⚠ S
T300A	ETA14Y85AY	TRANSFORMER	S
T300B	ETA14Y85AY	TRANSFORMER	S
T300C	ETA14Y85AY	TRANSFORMER	S
T300D	ETA14Y85AY	TRANSFORMER	S
T300E	ETA14Y85AY	TRANSFORMER	S
T300F	ETA14Y85AY	TRANSFORMER	S
T300G	ETA14Y85AY	TRANSFORMER	S
T300H	ETA14Y85AY	TRANSFORMER	S
T301	ETE13K24AY	TRANSFORMER	
		(CRYSTAL OSCILLATORS)	
X100	PSVCCR2400G2	CRYSTAL OSCILLATOR	S
X101	PSVCYY0358M3	CRYSTAL OSCILLATOR	S
X103	PSVCCP327KC4	CRYSTAL OSCILLATOR	S
X300	PSVCCR0400G7	CRYSTAL OSCILLATOR	S

TOP PREVIOUS NEXT

23.4 DOORPHONE/DOOR-OPERATOR CARD PARTS

TOP PREVIOUS NEXT

Ref. No.	Part No.	Part Name & Description	Remarks
PCB2	PSWP2TA308MU	DOORPHONE/DOOR-OPERATOR CARD ASS Y (RTL)	
		(ICS)	
IC1A	PQVINJM4558M	IC	S
IC1C	PQVINJM4558M	IC	S
IC2A	PQVINJM4558M	IC	S
IC2C	PQVINJM4558M	IC	S
		(TRANSISTORS)	
Q1A	UN5113	TRANSISTOR(SI)	S
Q1C	UN5113	TRANSISTOR(SI)	S
Q2A	UN5213	TRANSISTOR(SI)	S
Q2C	UN5213	TRANSISTOR(SI)	S
Q3A	PQVTDTC124EU	TRANSISTOR(SI)	
Q3C	PQVTDTC124EU	TRANSISTOR(SI)	
Q4A	2SC4081S	TRANSISTOR(SI)	
Q4C	2SC4081S	TRANSISTOR(SI)	
Q5A	2SA1576S	TRANSISTOR(SI)	
Q5C	2SA1576S	TRANSISTOR(SI)	
Q7A	UN521D	TRANSISTOR(SI)	
Q7C	UN521D	TRANSISTOR(SI)	
Q8A	PQVTDTC143E	TRANSISTOR(SI)	
Q8B	PQVTDTC143E	TRANSISTOR(SI)	
		(DIODES)	
D2A	PSVDUDZ68B	DIODE(SI)	S
D2C	PSVDUDZ68B	DIODE(SI)	S
D3A	MA110	DIODE(SI)	S
D3C	MA110	DIODE(SI)	S
D4A	MA110	DIODE(SI)	S
D4C	MA110	DIODE(SI)	S

D5A	MA110	DIODE(SI)	S
D5B	MA110	DIODE(SI)	S
		(CAPACITORS)	
C1	PSCEV1HA330	33p	S
C3	PSCEV1HA330	33p	S
C4A	PQCUV1H333JC	0.033	S
C4C	PQCUV1H333JC	0.033	S
C5A	PSCEV1HA470	47p	S
C5C	PSCEV1HA470	47p	S
C6A	PQCUV1E104MD	0.1	S
C6C	PQCUV1E104MD	0.1	S
C7A	PQCUV1H331JC	330p	S
C7C	PQCUV1H331JC	330p	S
C8A	PSCEV1HA010	1p	
C8C	PSCEV1HA010	1p	
C9A	PSCEV1HA100	10p	S
C9C	PSCEV1HA100	10p	S
C10A	PQCUV1H152KB	0.0015	S
C10C	PQCUV1H152KB	0.0015	S
C11A	PQCUV1H223KB	0.022	S
C11C	PQCUV1H223KB	0.022	S
C12A	PQCUV1H223KB	0.022	S
C12C	PQCUV1H223KB	0.022	S
C13A	PSCUV2EY104K	0.1	S
C13B	PSCUV2EY104K	0.1	S
C14A	PSCEV1HA010	1p	
C14C	PSCEV1HA010	1p	
		(RESISITORS)	
R1A	PQ4R10XJ103	10k	S
R1C	PQ4R10XJ103	10k	S
R2A	PQ4R10XJ222	2.2k	S
R2C	PQ4R10XJ222	2.2k	S
R3A	PQ4R10XJ222	2.2k	S
R3C	PQ4R10XJ222	2.2k	S
R4A	PQ4R10XJ224	220k	S
R4C	PQ4R10XJ224	220k	S
R5A	PQ4R10XJ103	10k	S

R5C	PQ4R10XJ103	10k	S
R6A	PQ4R10XJ182	1.8k	S
R6C	PQ4R10XJ182	1.8k	S
R7A	PQ4R10XJ101	100	S
R7C	PQ4R10XJ101	100	S
R8A	PQ4R10XF1151	1.15k	
R8C	PQ4R10XF1151	1.15k	
R9A	PQ4R10XJ103	10k	S
R9C	PQ4R10XJ103	10k	S
R10A	PQ4R10XJ334	330k	S
R10C	PQ4R10XJ334	330k	S
R11A	PQ4R10XJ473	47k	S
R11C	PQ4R10XJ473	47k	S
R12A	PQ4R10XJ563	56k	S
R12C	PQ4R10XJ563	56k	S
R13A	PQ4R10XJ102	1k	S
R13C	PQ4R10XJ102	1k	S
R14A	PQ4R10XJ103	10k	S
R14C	PQ4R10XJ103	10k	S
R15A	PQ4R10XJ392	3.9k	S
R15C	PQ4R10XJ392	3.9k	S
R16A	PQ4R10XJ101	100	S
R16C	PQ4R10XJ101	100	S
R17A	ERJ14YJ151	150	
R17B	ERJ14YJ151	150	
R19A	PQ4R10XJ103	10k	S
R19C	PQ4R10XJ103	10k	S
R20A	PQ4R10XJ000	0	S
R20C	PQ4R10XJ000	0	S
R22A	ERJ12YJ471	470	
R22B	ERJ12YJ471	470	
		(RELAYS)	
RLY2A	PSSLJV12KTZ	RELAY	
RLY2B	PSSLJV12KTZ	RELAY	
		(VARISTORS)	
ZNR1A	PQVDNV039D03	VARISTOR	S
ZNR1C	PQVDNV039D03	VARISTOR	S

		(TRANSFORMERS)	
T1A	ETA14Y101AY	TRANSFORMER	
T1C	ETA14Y101AY	TRANSFORMER	
		(CONNECTORS ANDJACK)	
CN1	PSJP26A62Z	CONNECTOR,26P	
CB1	PSJS26Q06Z	CONNECTOR,26P(WITH LEAD WIRE)	
CN2	K4AC04A00004	CONNECTOR,8P	
CN3	K2LB204B0001	JACK	
		(COILS)	
L1A	PQLE106	COIL	
L1C	PQLE106	COIL	
L2A	PQLE106	COIL	
L2C	PQLE106	COIL	
		(OTHER)	
E1	PQLB5D1	INSULATOR	S

TOP PREVIOUS NEXT

23.5 CALLER ID CARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB3	PSWP3TA308MU	CALLER ID CARD ASSÅLY (RTL)	
		(ICS)	
IC1A	C1CB00001176	IC	
IC1B	C1CB00001176	IC	
IC1C	C1CB00001176	IC	
IC3A	PQVIMB89371A	IC	S
IC3C	PQVIMB89371A	IC	S
IC7	PQVITC7H139F	IC	S
IC10	PQVITC4066BF	IC	S
IC11	PQVI92011556	IC	
IC14	PSVILC7366NM	IC	
IC15	PQVINJM4558M	IC	S
IC16	PQVIMB7HU04F	IC	S
IC17A	PQVINJM2904F	IC	S
IC17B	PQVINJM2904F	IC	S
IC17C	PQVINJM2904F	IC	S
IC101	PSWITA308MU	IC	
IC103	PSVIBA17812F	IC	S
		(TRANSISTORS)	
Q40	UN5213	TRANSISTOR(SI)	S
Q41	UN5213	TRANSISTOR(SI)	S
Q42	UN5213	TRANSISTOR(SI)	S
Q43	2SD1664Q	TRANSISTOR(SI)	S
Q50A	UN5213	TRANSISTOR(SI)	S
Q50B	UN5213	TRANSISTOR(SI)	S
Q50C	UN5213	TRANSISTOR(SI)	S
		(DIODES)	
D1A	MA110	DIODE(SI)	S
D1B	MA110	DIODE(SI)	S
D1C	MA110	DIODE(SI)	S

D2A	MA110	DIODE(SI)	S
D2B	MA110	DIODE(SI)	S
D2C	MA110	DIODE(SI)	S
D3A	MA110	DIODE(SI)	S
D3B	MA110	DIODE(SI)	S
D3C	MA110	DIODE(SI)	S
D4A	MA110	DIODE(SI)	S
D4B	MA110	DIODE(SI)	S
D4C	MA110	DIODE(SI)	S
D5A	MA110	DIODE(SI)	S
D5B	MA110	DIODE(SI)	S
D5C	MA110	DIODE(SI)	S
D6A	MA110	DIODE(SI)	S
D6B	MA110	DIODE(SI)	S
D6C	MA110	DIODE(SI)	S
D40	PSVDUDZ12BT	DIODE(SI)	S
D50A	MA111	DIODE(SI)	S
D50B	MA111	DIODE(SI)	S
D50C	MA111	DIODE(SI)	S
		(CAPACITORS)	
C3A	ECKD3D471KBP	470p	
C3B	ECKD3D471KBP	470p	
C3C	ECKD3D471KBP	470p	
C40	PQCUV1H104ZF	0.1	S
C41	PQCUV1H822KB	0.0082	
C42	PQCUV1H152KB	0.0015	
C43	PSCEV1HA330	33p	S
C44	PSCEV1HA330	33p	S
C46	PSCEV1HA470	47p	S
C4A	ECKD3D471KBP	470p	
C4B	ECKD3D471KBP	470p	
C4C	ECKD3D471KBP	470p	
C5A	PQCUV1H104ZF	0.1	
C5B	PQCUV1H104ZF	0.1	
C5C	PQCUV1H104ZF	0.1	
C6A	PQCUV1H473MD	0.047	S
C6B	PQCUV1H473MD	0.047	S
C6C	PQCUV1H473MD	0.047	S

C7	PQCUV1H223KB	0.022	S
C8A	PQCUV1H223KB	0.022	S
C8C	PQCUV1H223KB	0.022	S
C9A	PQCUV1E224MD	0.22	S
C9B	PQCUV1E224MD	0.22	S
C9C	PQCUV1E224MD	0.22	S
C10	PQCUV1H180JC	18p	
C11	PQCUV1H223KB	0.022	S
C12	PQCUV1H223KB	0.022	S
C13	PQCUV1H223KB	0.022	S
C14	PQCUV1H223KB	0.022	S
C15	PQCUV1H180JC	18p	
C18A	PQCUV1H104ZF	0.1	S
C30	PQCUV1H223KB	0.022	S
C50A	ECUV1H222KBV	0.0022	
C50B	ECUV1H222KBV	0.0022	
C50C	ECUV1H222KBV	0.0022	
C51A	ECUV1H222KBV	0.0022	
C51B	ECUV1H222KBV	0.0022	
C51C	ECUV1H222KBV	0.0022	
C52A	ECUV1C683KBV	0.068	
C52B	ECUV1C683KBV	0.068	
C52C	ECUV1C683KBV	0.068	
C53A	ECUV1C683KBV	0.068	
C53B	ECUV1C683KBV	0.068	
C53C	ECUV1C683KBV	0.068	
C54A	ECUV1H223ZFV	0.022	S
C54B	ECUV1H223ZFV	0.022	S
C54C	ECUV1H223ZFV	0.022	S
C55A	ECUV1H332KBV	0.0033	
C55B	ECUV1H332KBV	0.0033	
C55C	ECUV1H332KBV	0.0033	
C56A	ECUV1C224KBV	0.22	
C56B	ECUV1C224KBV	0.22	
C56C	ECUV1C224KBV	0.22	
C57A	ECUV1H332KBV	0.0033	
C57B	ECUV1H332KBV	0.0033	
C57C	ECUV1H332KBV	0.0033	
C61	PQCUV1H104ZF	0.1	S

		(RESISITORS)	
J1	ERJ3GEYJ0R00	0	
R1A	ERJ3EKF3903	390k	
R1B	ERJ3EKF3903	390k	
R1C	ERJ3EKF3903	390k	
R2A	ERJ3EKF3903	390k	
R2B	ERJ3EKF3903	390k	
R2C	ERJ3EKF3903	390k	
R3A	ERJ3GEYJ474	470k	
R3B	ERJ3GEYJ474	470k	
R3C	ERJ3GEYJ474	470k	
R4B	ERJ3GEYJ334	330k	
R4C	ERJ3GEYJ334	330k	
R5A	ERJ3EKF5602	56k	
R5B	ERJ3EKF5602	56k	
R5C	ERJ3EKF5602	56k	
R6A	ERJ3EKF1504	1500k	
R6B	ERJ3EKF1504	1500k	
R6C	ERJ3EKF1504	1500k	
R7A	ERJ3EKF5602	56k	
R7B	ERJ3EKF5602	56k	
R7C	ERJ3EKF5602	56k	
R8A	ERJ3EKF3903	390k	
R8B	ERJ3EKF3903	390k	
R8C	ERJ3EKF3903	390k	
R9A	ERJ3EKF1002	10k	
R9B	ERJ3EKF1002	10k	
R9C	ERJ3EKF1002	10k	
R10A	ERJ3ENF8202	82k	S
R10B	ERJ3ENF8202	82k	S
R10C	ERJ3ENF8202	82k	S
R11A	ERJ3ENF8202	82k	S
R11B	ERJ3ENF8202	82k	S
R11C	ERJ3ENF8202	82k	S
R12	ERJ3GEYJ473	47k	
R13A	ERJ3GEYJ473	47k	
R13B	ERJ3GEYJ473	47k	
R13C	ERJ3GEYJ473	47k	

R13D	ERJ3GEYJ473	47k	
R14A	ERJ3GEYJ473	47k	
R14B	ERJ3GEYJ473	47k	
R14C	ERJ3GEYJ473	47k	
R14D	ERJ3GEYJ473	47k	
R15D	ERJ3GEYJ473	47k	
R16	ERJ3GEYJ473	47k	
R17A	ERJ3GEYJ103	10k	
R17B	ERJ3GEYJ103	10k	
R17C	ERJ3GEYJ103	10k	
R18	ERJ3GEYJ105	1M	
R19A	ERJ3GEYJ104	100k	
R19B	ERJ3GEYJ104	100k	
R19C	ERJ3GEYJ104	100k	
R26A	ERJ3GEYJ473	47k	
R26B	ERJ3GEYJ473	47k	
R26C	ERJ3GEYJ473	47k	
R27A	ERJ3GEYJ473	47k	
R27B	ERJ3GEYJ473	47k	
R27C	ERJ3GEYJ473	47k	
R28A	ERJ3GEYJ473	47k	
R28B	ERJ3GEYJ473	47k	
R28C	ERJ3GEYJ473	47k	
R29A	ERJ3GEYJ473	47k	
R29B	ERJ3GEYJ473	47k	
R29C	ERJ3GEYJ473	47k	
R30A	ERJ3GEYJ473	47k	
R30B	ERJ3GEYJ473	47k	
R30C	ERJ3GEYJ473	47k	
R31A	ERJ3GEYJ473	47k	
R31B	ERJ3GEYJ473	47k	
R31C	ERJ3GEYJ473	47k	
R32	ERJ3GEYJ473	47k	
R33	ERJ3GEYJ473	47k	
R34	ERJ3GEYJ473	47k	
R35	ERJ3GEYJ473	47k	
R36	ERJ3GEYJ473	47k	
R37	ERJ3GEYJ473	47k	
R38	ERJ3GEYJ473	47k	

R39	ERJ3GEYJ473	47k	
R40	ERJ3GEYJ473	47k	
R41	ERJ3GEYJ473	47k	
R42	ERJ3GEYJ473	47k	
R43	ERJ3GEYJ472	4.7k	
R44	ERJ3GEY0R00	0	
R45	ERJ3GEYJ123	12k	
R46	ERJ3GEYJ473	47k	
R47	PQ4R18XJ272	2.7k	S
R4A	ERJ3GEYJ334	330k	
R50A	ERJ3GEYJ243	24k	
R50B	ERJ3GEYJ243	24k	
R50C	ERJ3GEYJ243	24k	
R51A	ERJ3GEYJ243	24k	
R51B	ERJ3GEYJ243	24k	
R51C	ERJ3GEYJ243	24k	
R52A	ERJ3GEYJ472	4.7k	
R52B	ERJ3GEYJ472	4.7k	
R52C	ERJ3GEYJ472	4.7k	
R53A	ERJ3ENF2203	0	
R53B	ERJ3ENF2203	0	
R53C	ERJ3ENF2203	0	
R54A	ERJ3ENF3903	0	
R54B	ERJ3ENF3903	0	
R54C	ERJ3ENF3903	0	
R55A	ERJ3GEYF222	2.2k	
R55B	ERJ3GEYF222	2.2k	
R55C	ERJ3GEYF222	2.2k	
R56A	ERJ3ENF5601	0	
R56B	ERJ3ENF5601	0	
R56C	ERJ3ENF5601	0	
R57A	ERJ3ENF1002	0	
R57B	ERJ3ENF1002	0	
R57C	ERJ3ENF1002	0	
R58A	ERJ3ENF3302	0	
R58B	ERJ3ENF3302	0	
R58C	ERJ3ENF3302	0	
R59A	ERJ3ENF1002	0	
R59B	ERJ3ENF1002	0	

R59C	ERJ3ENF1002	0	
R60A	ERJ3ENF2203	0	
R60B	ERJ3ENF2203	0	
R60C	ERJ3ENF2203	0	
R61A	ERJ3GEY0R00	0	
R61B	ERJ3GEY0R00	0	
R61C	ERJ3GEY0R00	0	
R62A	ERJ3GEYJ104	100k	
R62B	ERJ3GEYJ104	100k	
R62C	ERJ3GEYJ104	100k	
		(CONNECTOR)	
CN1	PSJS50Q04Z	CONNECTOR, 50P	
		(CRYSTAL OSCILLATORS)	
X1	PSVCYY0358M3	CRYSTAL OSCILLATOR	S
X2	PSVCC0041L	CRYSTAL OSCILLATOR	S

TOP PREVIOUS NEXT

23.6 POWER SUPPLY BOARD PARTS

Ref. No.	Part No.	Part Name & Description	Remarks
PCB4	PSLP1089Z	POWER SUPPLY BOARD ASS Y (RTL)	⚠
		(ICS)	
IC1	AN8021L	IC	
IC101	PSVIPQ1CF2	IC	S
IC301	PQVILA6500	IC	S
IC304	PQVILA6500	IC	S
		(TRANSISTORS)	
Q1	2SK2972	TRANSISTOR(SI)	
Q31	2SC1740S	TRANSISTOR(SI)	
Q101	2SC1740S	TRANSISTOR(SI)	
Q150	2SC1740S	TRANSISTOR(SI)	
		DIODE(SI)	
D1	PQVDD3SBA60M	DIODE(SI)	S
D3	PSVDERA2206	DIODE(SI)	S
D4	PSVDHZS202	DIODE(SI)	S
D5	PSVDERA2206	DIODE(SI)	S
D6	PSVDHZS272	DIODE(SI)	S
D15	PSVDERA1506	DIODE(SI)	S
D31	PSVDERA1506	DIODE(SI)	S
D32	PSVDHZS272	DIODE(SI)	S
D33	PSVDHZS272	DIODE(SI)	S
D34	PSVDHZS152	DIODE(SI)	S
D101	PSVDYG902C2R	DIODE(SI)	S
D102	PSVDERB83006	DIODE(SI)	S
D111	PSVDHZS7A2	DIODE(SI)	S
D301	PSVDHZS12A2	DIODE(SI)	S
		(COILS)	
BEA1	PSLEBL02RN1	COIL	S
BEA2	PSLEBL02RN2	COIL	S

BEA101	PSLEBL02RN2	COIL	S
BEA103	PSLEBL01RN1	COIL	S
L1	ELF19N016A	COIL	
L101	PSLESK08MS5Y	COIL	S
		(SOCKETS AND CONNECTORS)	
CN1	PSJPNC18710N	SOCKET	S
CN101	PQJP7D68Z	CONNECTOR, 7P	S
CN102	PQJP4D16Z	CONNECTOR, 4P	S
CN104	PQJP2D68Z	CONNECTOR, 2P	S
		(CAPACITORS)	
C1	PSCQERE224	0.22	S
C5	PSCEA200V331	330p	
C7	PSCKD161E472	0.0047	S
C8	PSCKD085L101	100p	S
C10	PSCKD901F104	0.1	S
C11	PSQE50F2D103	0.01	S
C12	PSCEA35VB820	82	S
C13	PSCKD901F104	0.1	S
C14	PSCKD901F104	0.1	S
C15	ECKT2H221KB	220p	
C16	ECQB1H472JF	0.0047	
C17	PSCKD161E472	0.0047	S
C31	ECQE6104KF	0.1	
C101	PSCEA35VB331	330p	S
C102	PSCEA35VB331	330p	S
C103	PSCEA16VB470	47p	S
C109	PSCKD105R152	0.0015	S
C110	PSCKD901F104	0.1	S
C301	PSCEA35VB820	82p	S
C302	PSCKD901F104	0.1	S
C303	PSCKD901F104	0.1	S
		(FUSE)	
F1	PQBA1C40NBKL	FUSE	⚠ S
		(THERMISTORS)	
NTC1	PSRTNT11D5R0	THERMISTOR	S

NTC2	PSRTNT11D5R0	THERMISTOR	S
		(PHOTO ELECTRIC TRANSDUCERS)	
PC1	PSVIPC123FY8	PHOTO ELECTRIC TRANSDUCER	⚠ S
PC2	PSVIPC123FY8	PHOTO ELECTRIC TRANSDUCER	⚠ S
		(TRANSISITORS)	
R1	ERDS1TJ564	560k	S
R5	ERDS2TJ220	22	
R7	ERDS2TJ623	62k	
R8	ERDS2TJ161	160	
R9	ERDS2TJ820	82	
R10	ERDS2TJ821	820	
R11	PSBPR38F022	0.22	S
R13	ERDS2TJ103	10k	S
R14	ERDS2TJ473	47k	
R15	ERDS2TJ104	100k	
R16	ERDS2TJ474	470k	
R17	ERG1SJ470	47	
R21	ERG2SJ103	10k	
R22	ERG2SJ103	10k	
R23	ERG2SJ103	10k	
R31	ERDS2TJ824	820k	
R32	ERDS2TJ824	820k	
R33	ERDS2TJ124	120k	
R34	ERDS2TJ124	120k	
R35	ERDS2TJ103	10k	S
R36	ERDS2TJ103	10k	S
R38	ERDS2TJ102	1k	
R110	ERDS2TJ182	1.8k	
R111	ERDS2TJ102	1k	
R112	ERDS2TJ562	5.6k	
R113	ERDS2TJ682	6.8k	
R114	ERDS2TJ163	16k	
R116	ERDS2TJ562	5.6k	
R120	ERDS2TJ752	7.5k	
R121	ERDS2TJ222	2.2k	
R150	ERDS2TJ123	12k	

R151	ERDS2TJ474	470k	
R152	ERDS2TJ223	22k	
R153	ERDS2TJ223	22k	
R301	ERG2SJ101	100	
R302	ERDS2TJ222	2.2k	
R303	ERDS2TJ272	2.7k	
R304	ERDS2TJ392	3.9k	
R305	ERDS2TJ103	10k	S
R306	ERDS2TJ2R2	2.2	
R307	ERDS2TJ2R2	2.2	
		(TRANSFORMER)	
T1	PSLT2U048	TRANSFORMER	S
		(VARIABLE RESISTORS)	
VR101	EVNDXAA03B53	SEMI-FIXED RESISTOR, 500	
VR102	PQNVZ6TLTB13	SEMI-FIXED RESISTOR, 1k	S
		(VARISTORS)	
AL1	PSVDRA362PV7	VARISTOR	
Z1	PSVDENC471D7	VARISTOR	S
Z2	PSVDENC471D7	VARISTOR	S

TOP PREVIOUS NEXT

23.7 FIXTURES AND TOOLS

Ref. No.	Part No.	Part Name & Description	Remarks
EC1	PQZZ2K7Z	EXTENTION CORD, 2P	
EC2	PQZZ50K2Z	EXTENTION CORD, 50P	
EC3	PQZZ50K4Z	EXTENTION CORD, 7P	

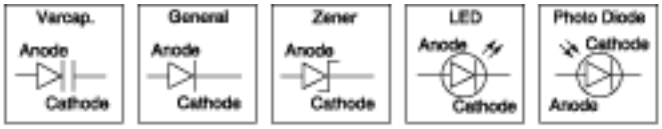
24 FOR THE SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

Note:

1. DC voltage measurements are taken with an oscilloscope or a tester with a ground.

2. The schematic diagrams and circuit board may be modified at any time with the development of new technology.



Important safety notice
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of there components, use only manufacturer's specified parts.

TOP PREVIOUS NEXT

25 SCHEMATIC DIAGRAM

TOP PREVIOUS NEXT

25.1 MAIN BOARD NO.1

25.2 MAIN BOARD NO.2

25.3 MAIN BOARD NO.3

25.4 DOORPHONE / DOOR-OPENER CARD

25.5 CALLER ID CARD

25.6 POWER SUPPLY BOARD

TOP PREVIOUS NEXT

25.1 MAIN BOARD NO.1

25.2 MAIN BOARD NO.2

25.3 MAIN BOARD NO.3

25.4 DOORPHONE/DOOR-OPENER CARD

25.5 CALLER ID CARD

25.6 POWER SUPPLY BOARD

26 PRINTED CIRCUIT BOARD

TOP PREVIOUS NEXT

26.1 MAIN BOARD

26.2 DOORPHONE / DOOR-OPENER CARD

26.3 CALLER ID CARD

26.4 POWER SUPPLY BOARD

TOP PREVIOUS NEXT

26.1 MAIN BOARD

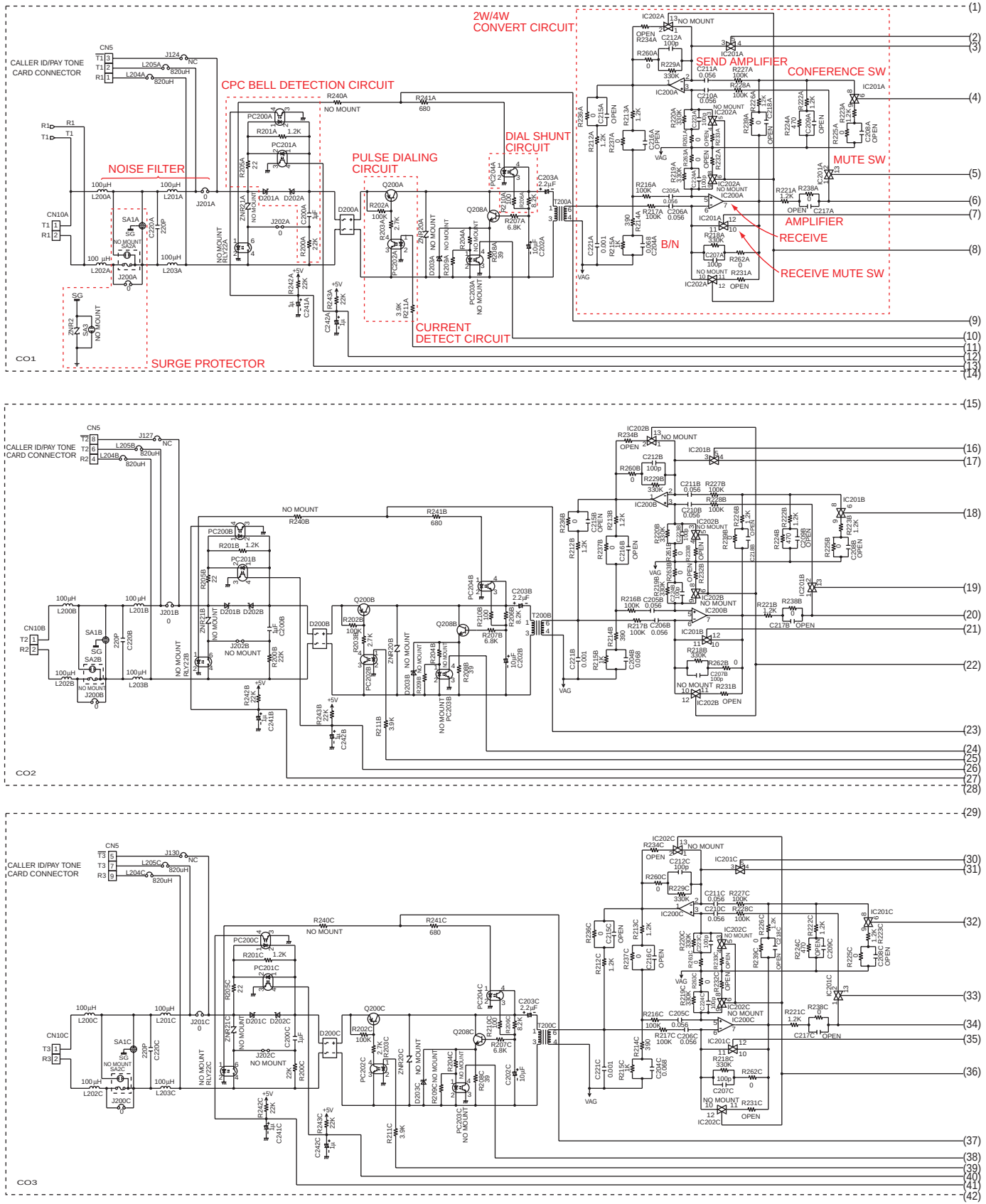
26.2 DOORPHONE/DOOR-OPENER CARD

26.3 CALLER ID CARD

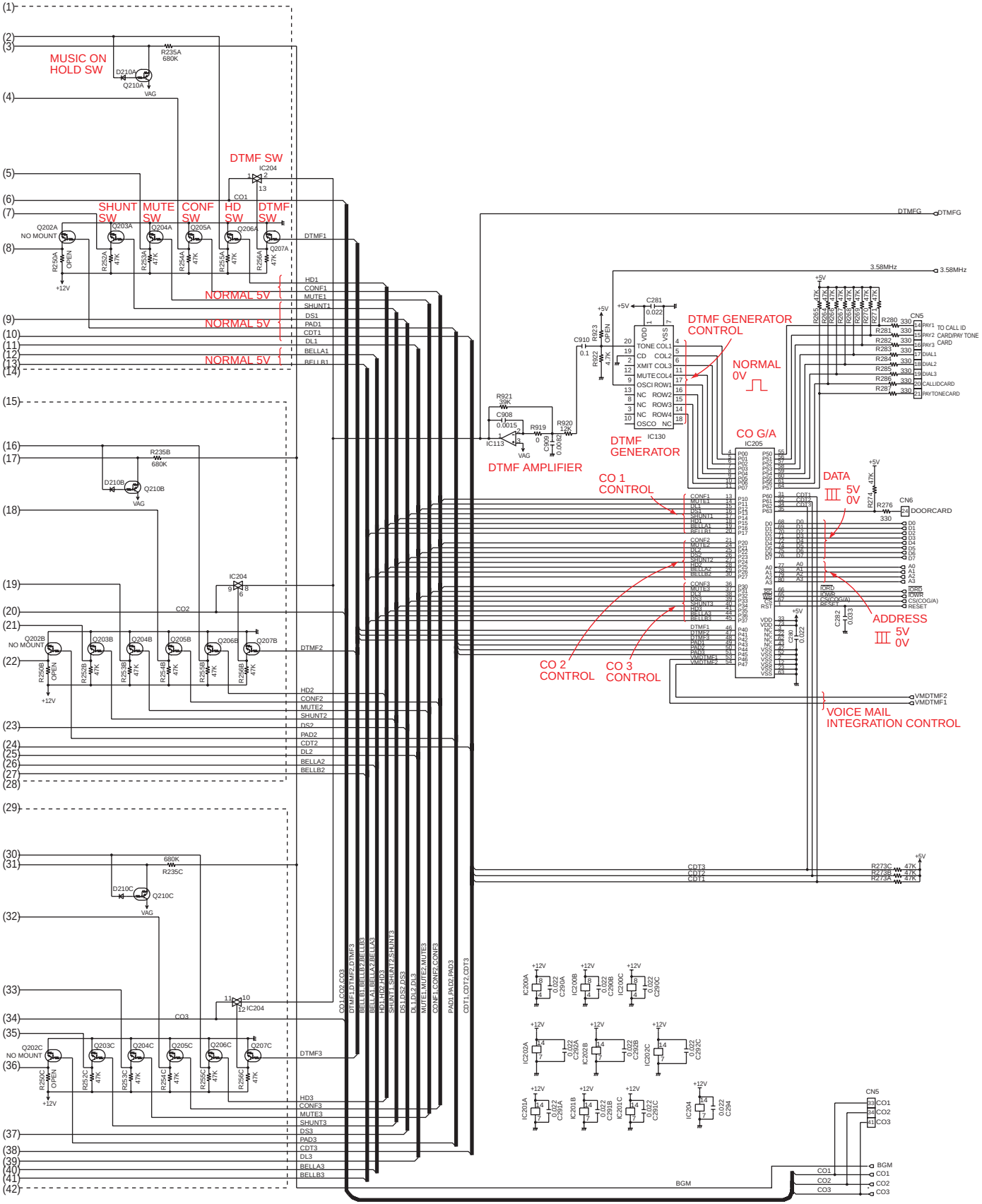
26.4 POWER SUPPLY BOARD

TOP PREVIOUS

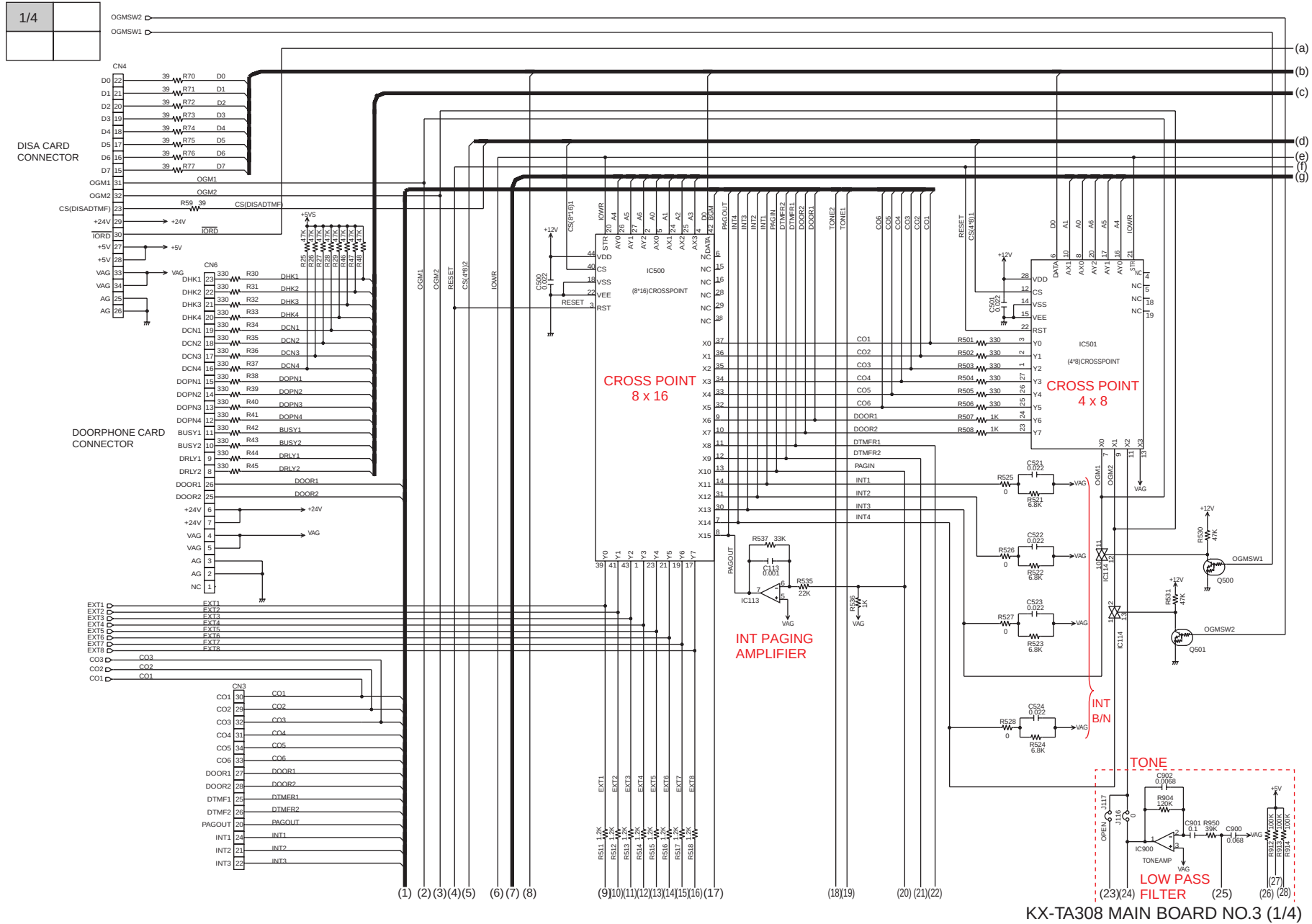
TOP PREVIOUS



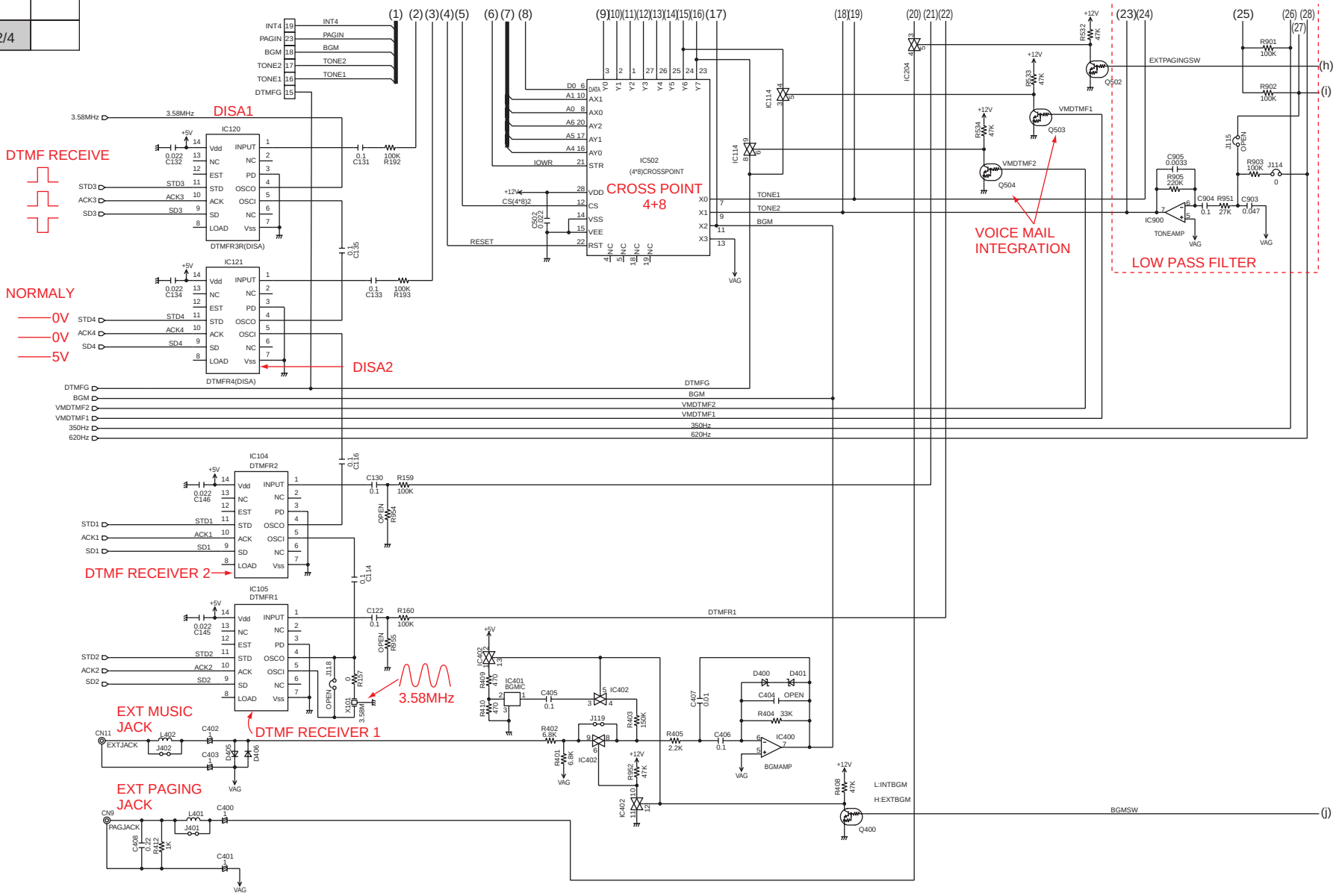
KX-TA308 MAIN BOARD NO.2 (1/2)



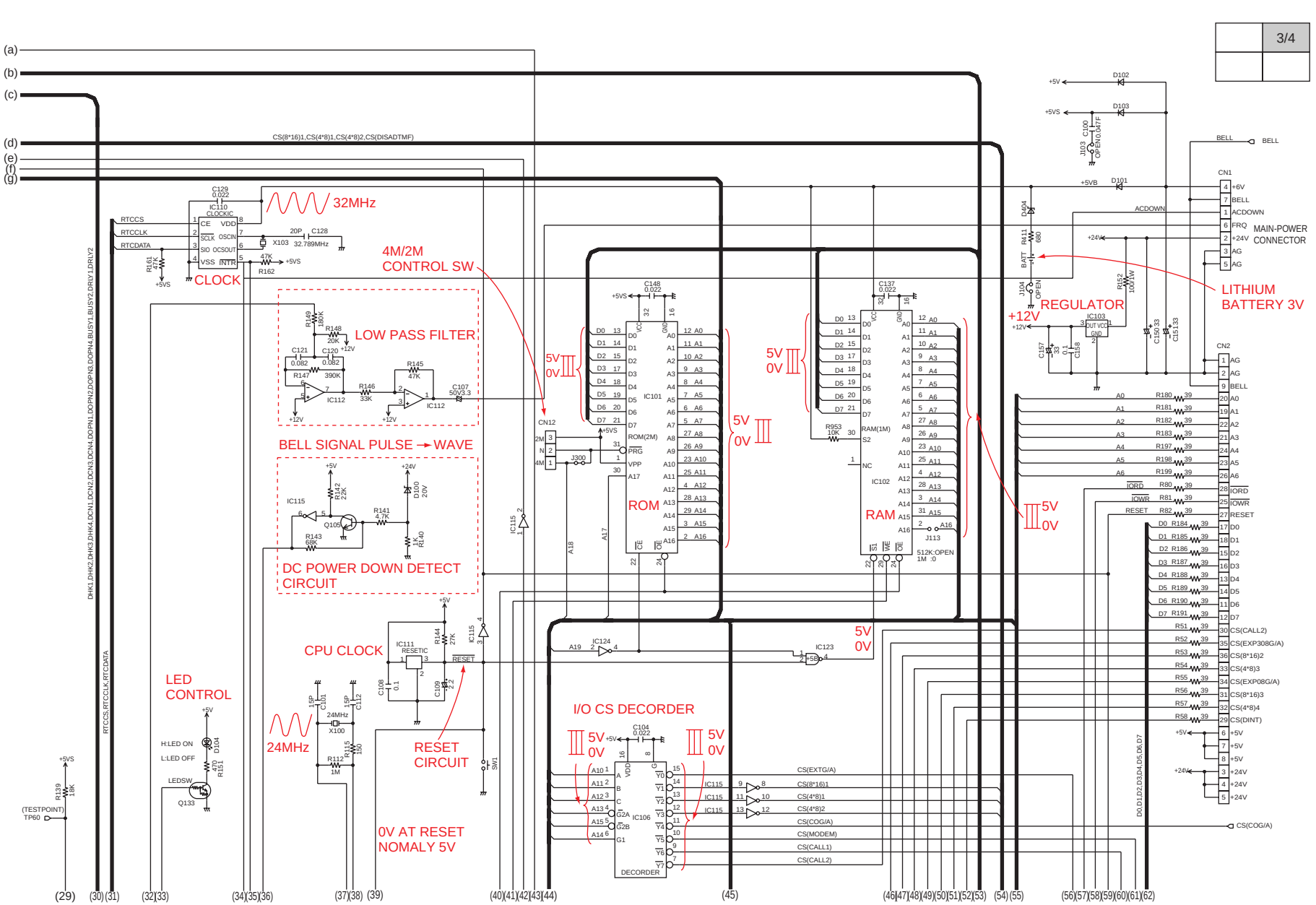
KX-TA308 MAIN BOARD NO.2 (2/2)



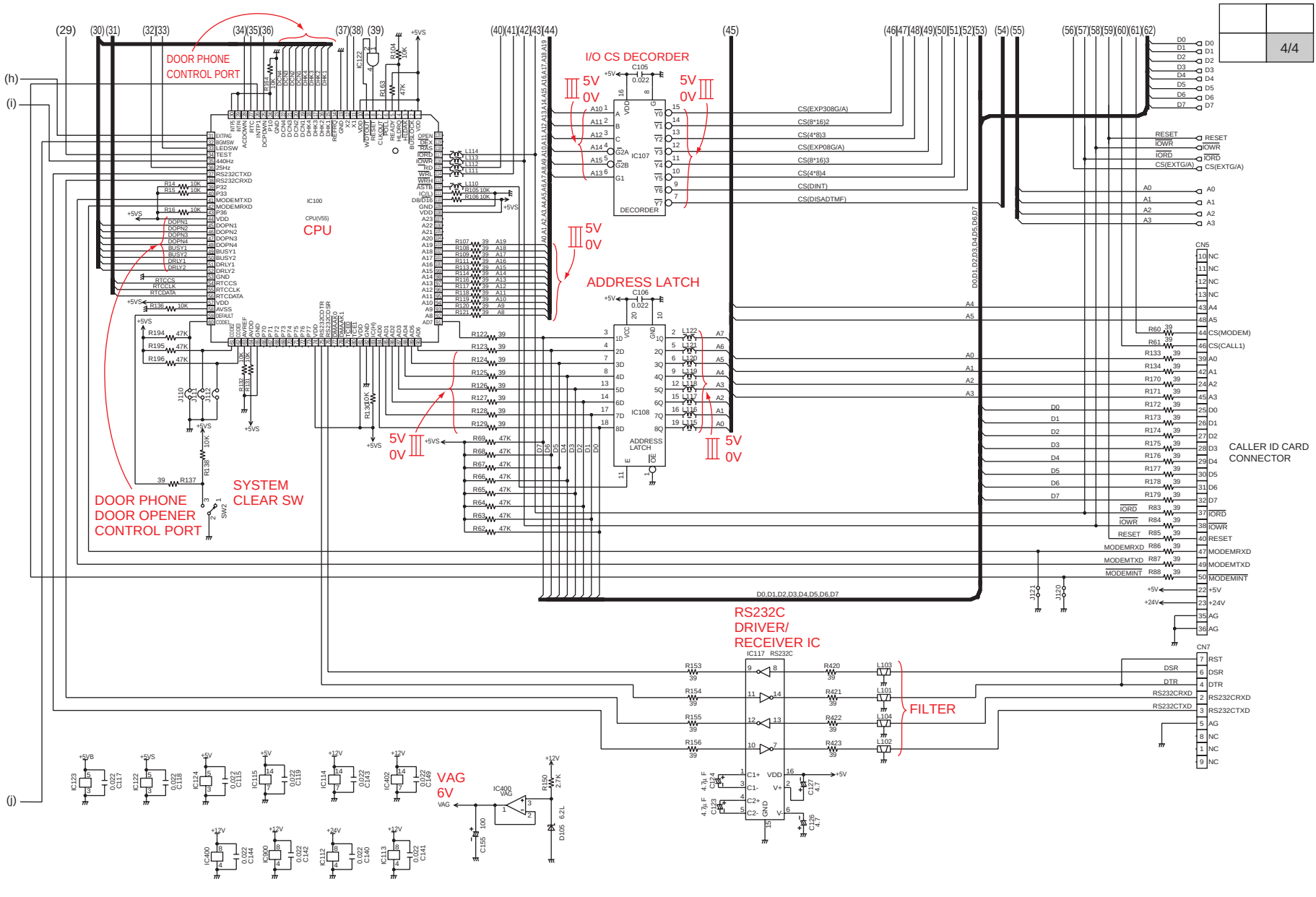
KX-TA308 MAIN BOARD NO.3 (1/4)



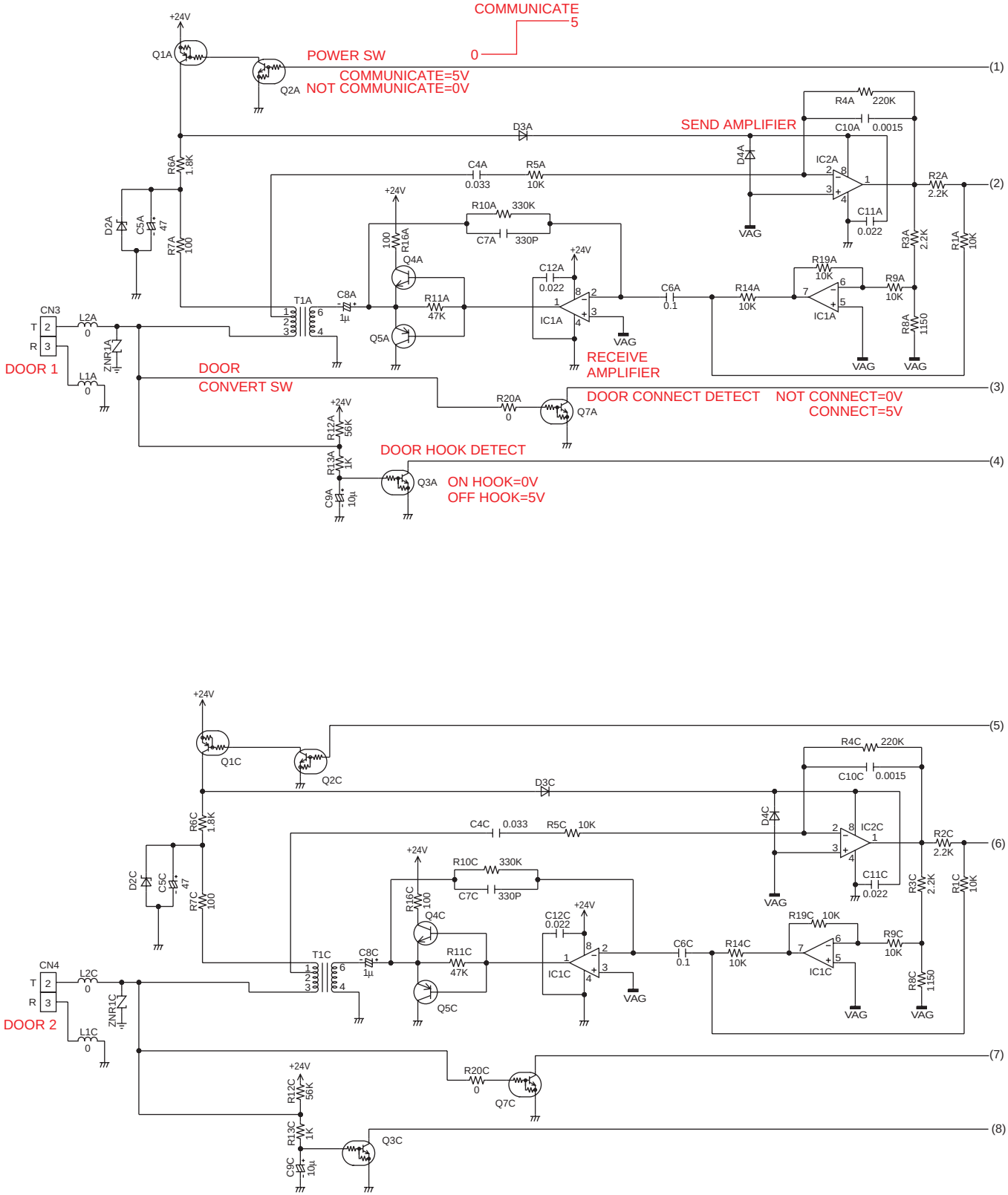
KX-TA308 MAIN BOARD NO.3 (2/4)



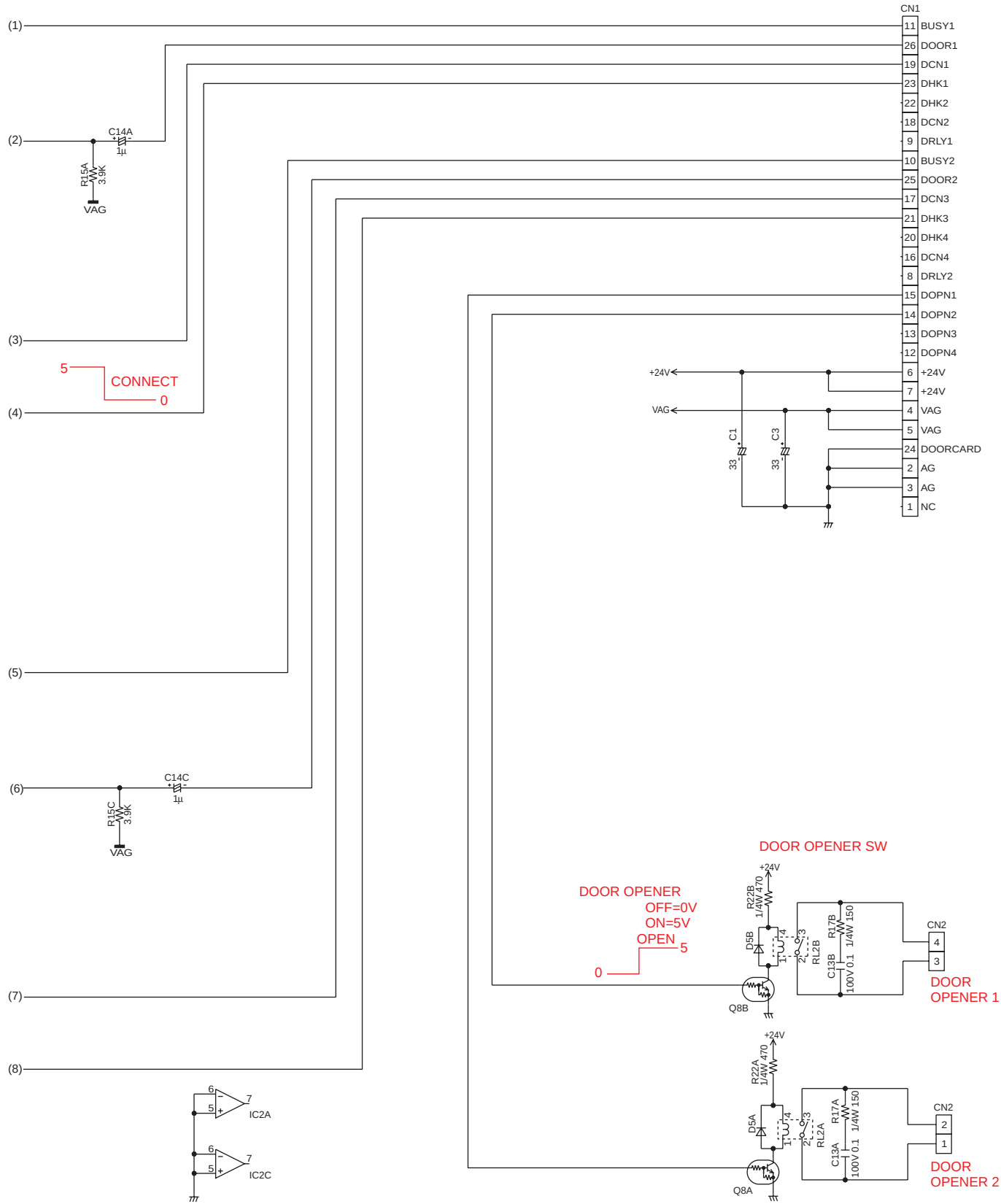
KX-TA308 MAIN BOARD NO.3 (3/4)



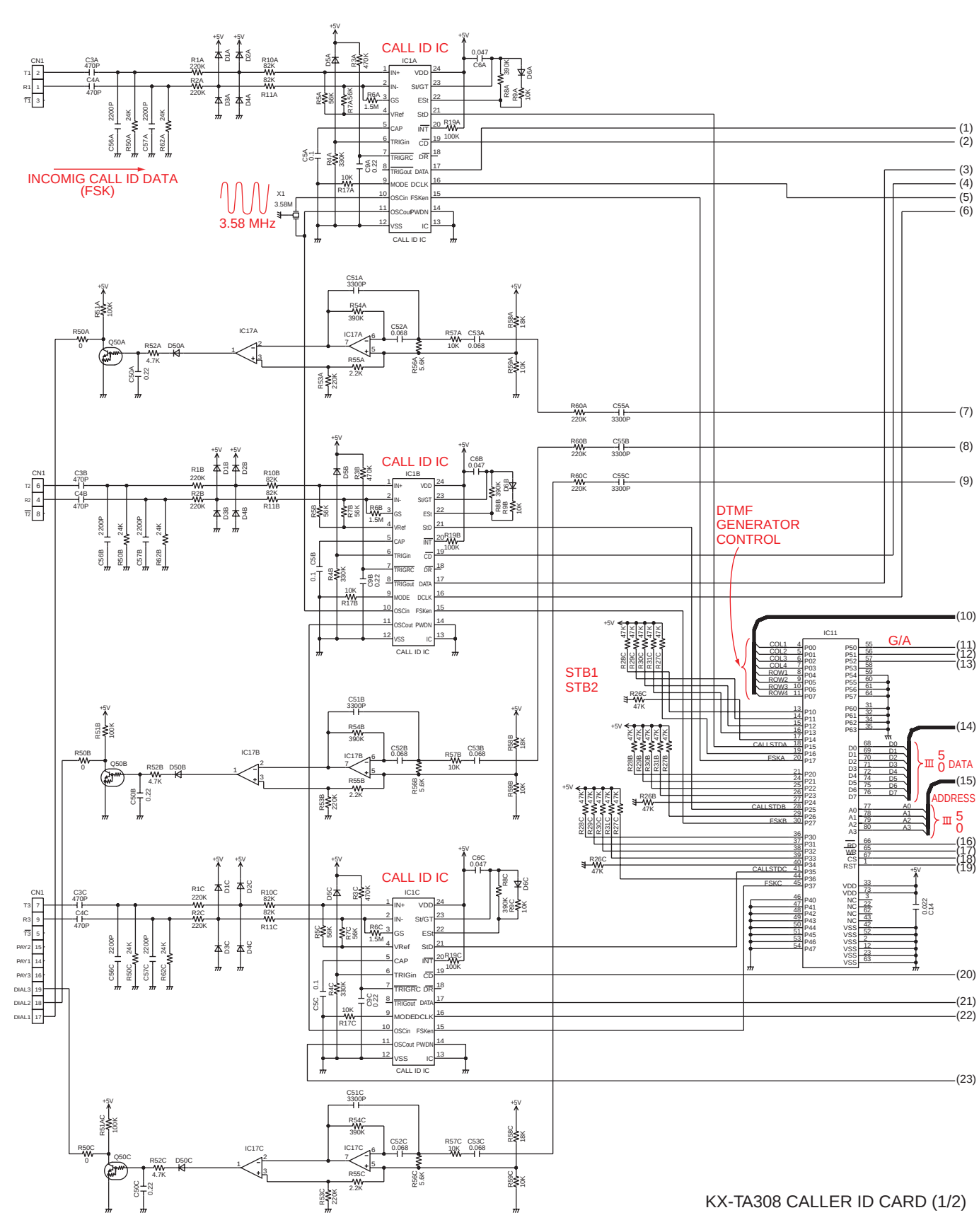
KX-TA308 MAIN BOARD NO.3 (4/4)

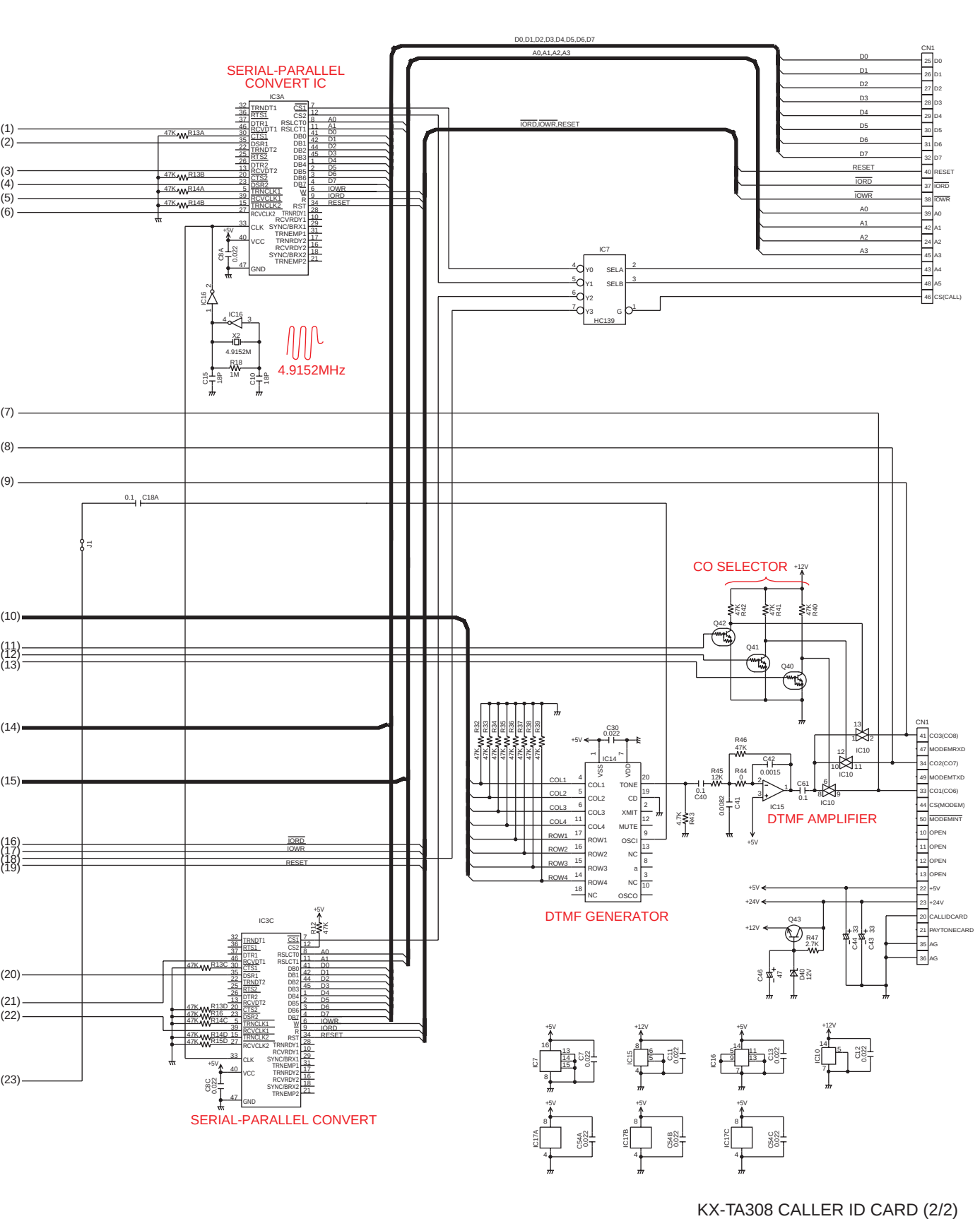


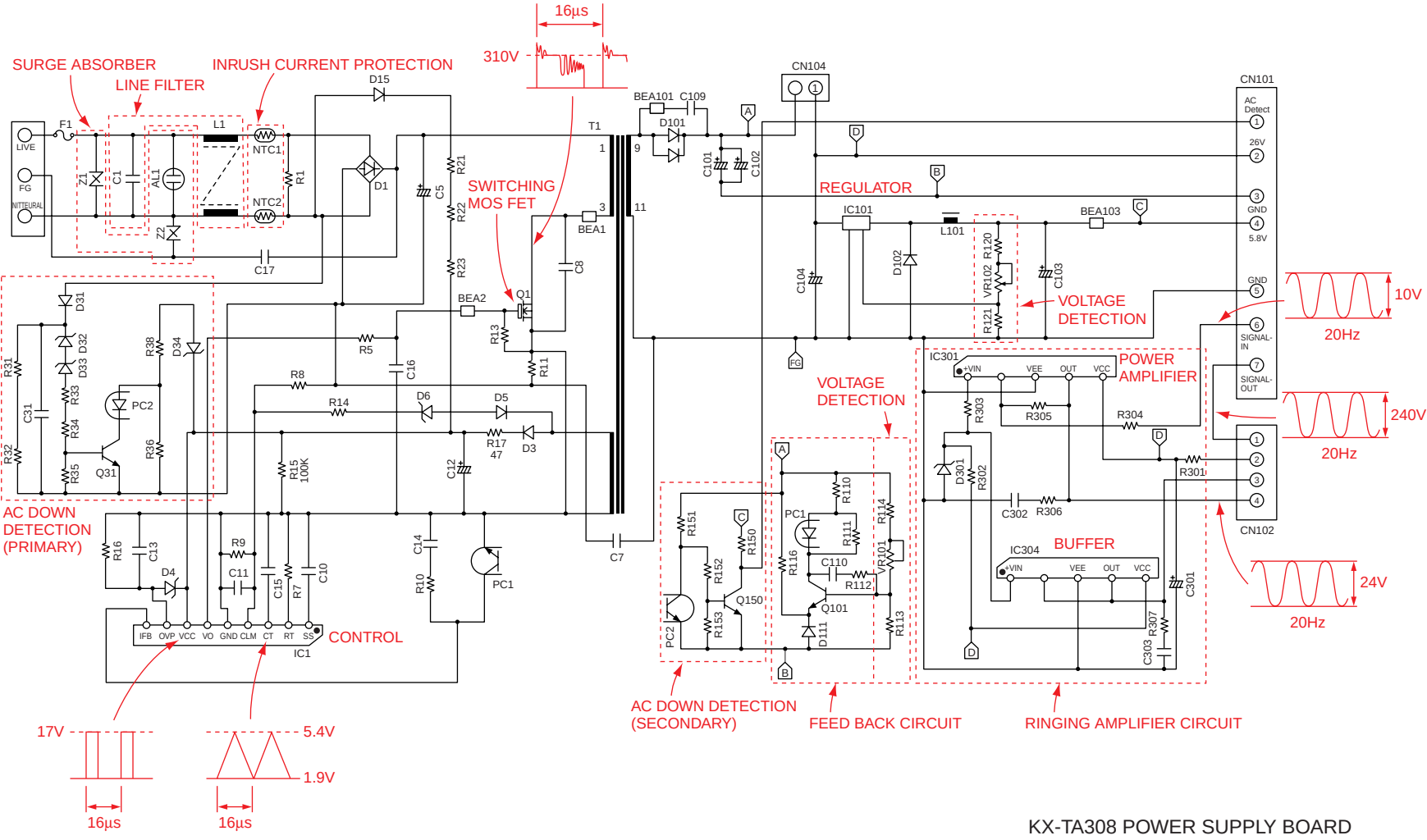
KX-TA308 DOORPHONE/DOOR-OPENER CARD (1/2)

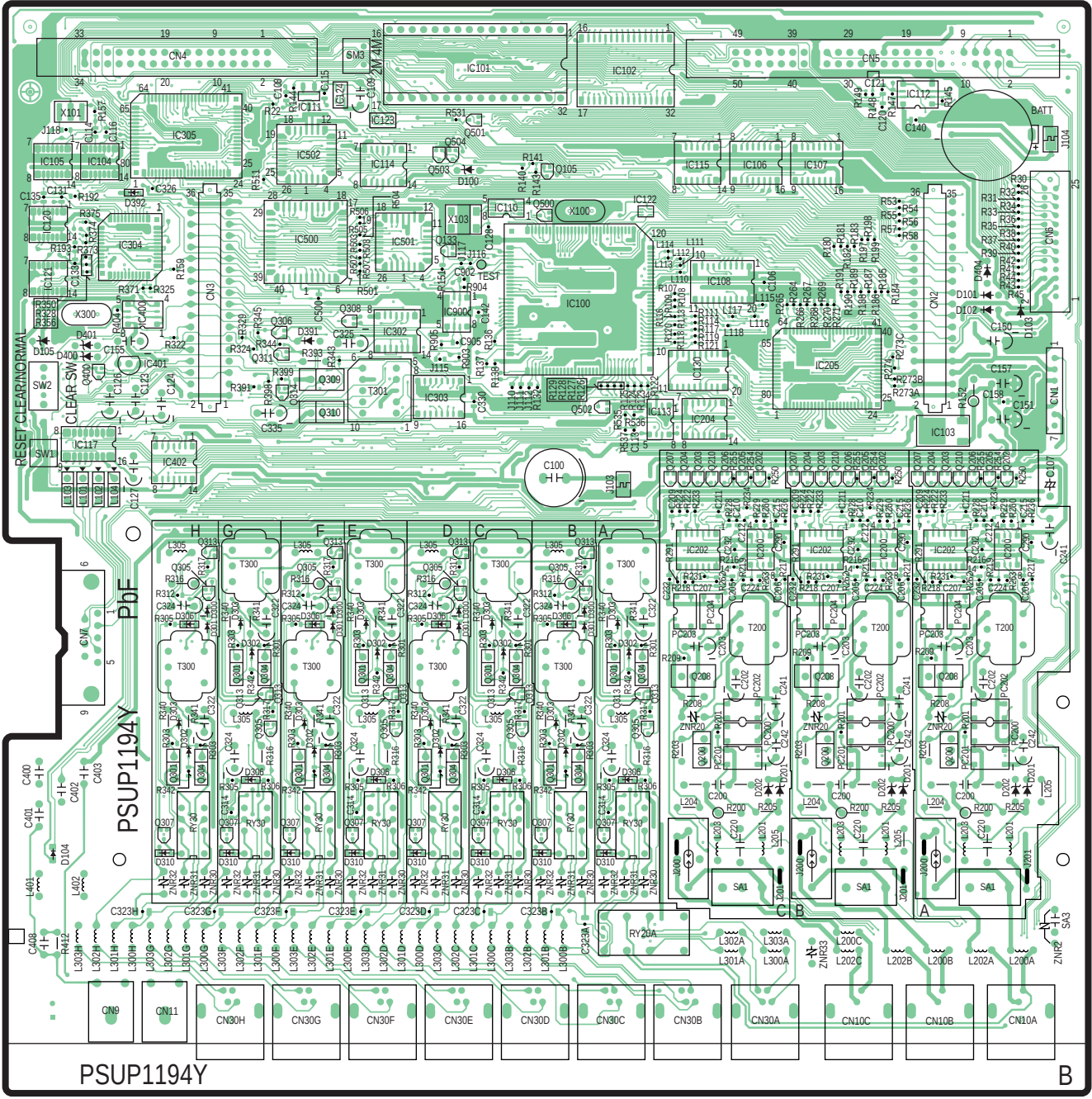


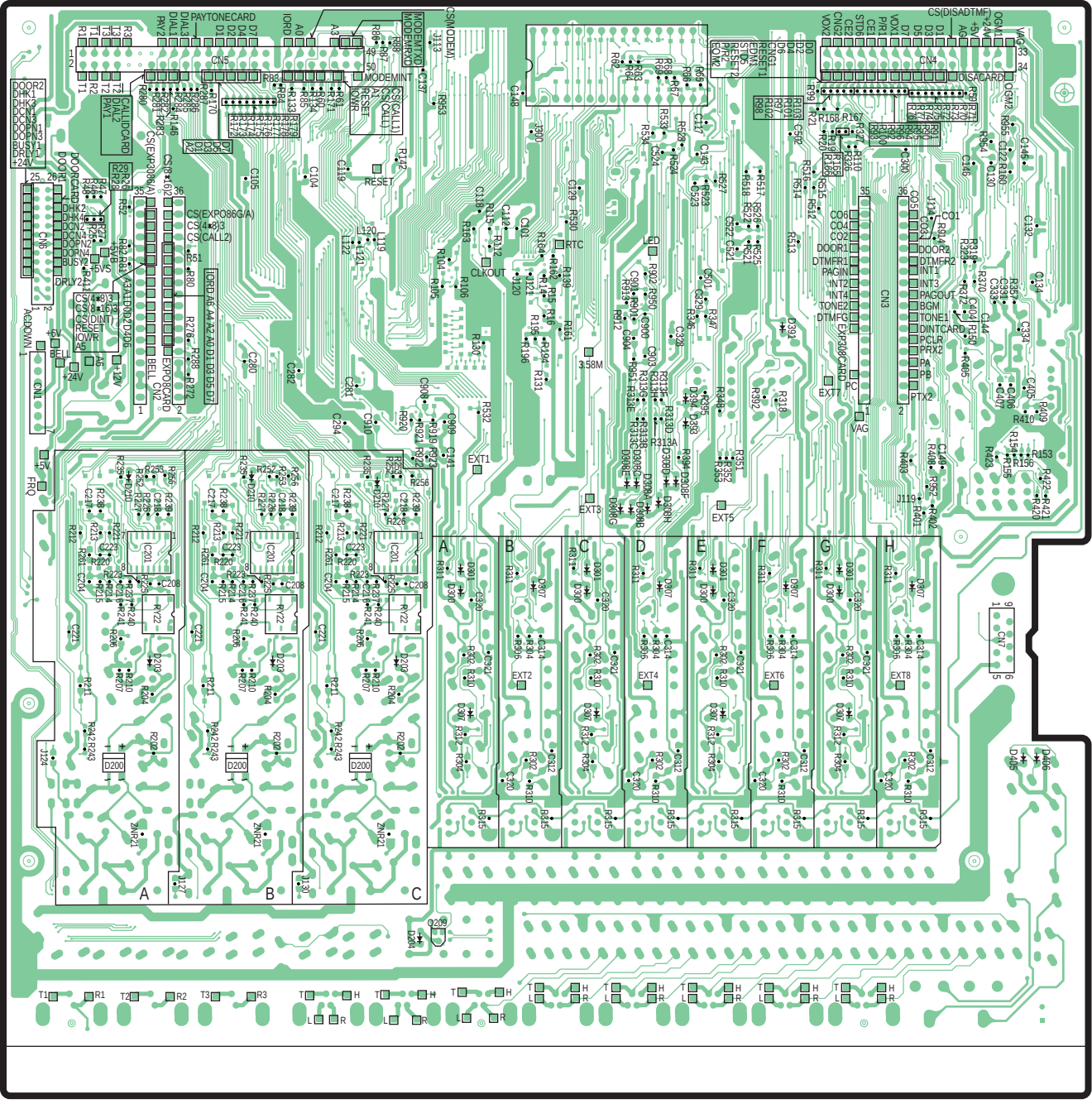
KX-TA308 DOORPHONE/DOOR-OPENER CARD (2/2)


CALL ID IC
INCOMIG CALL ID DATA (FSK)
3.58 MHz
DTMF GENERATOR CONTROL
STB1
STB2
G/A
DATA
ADDRESS
KX-TA308 CALLER ID CARD (1/2)

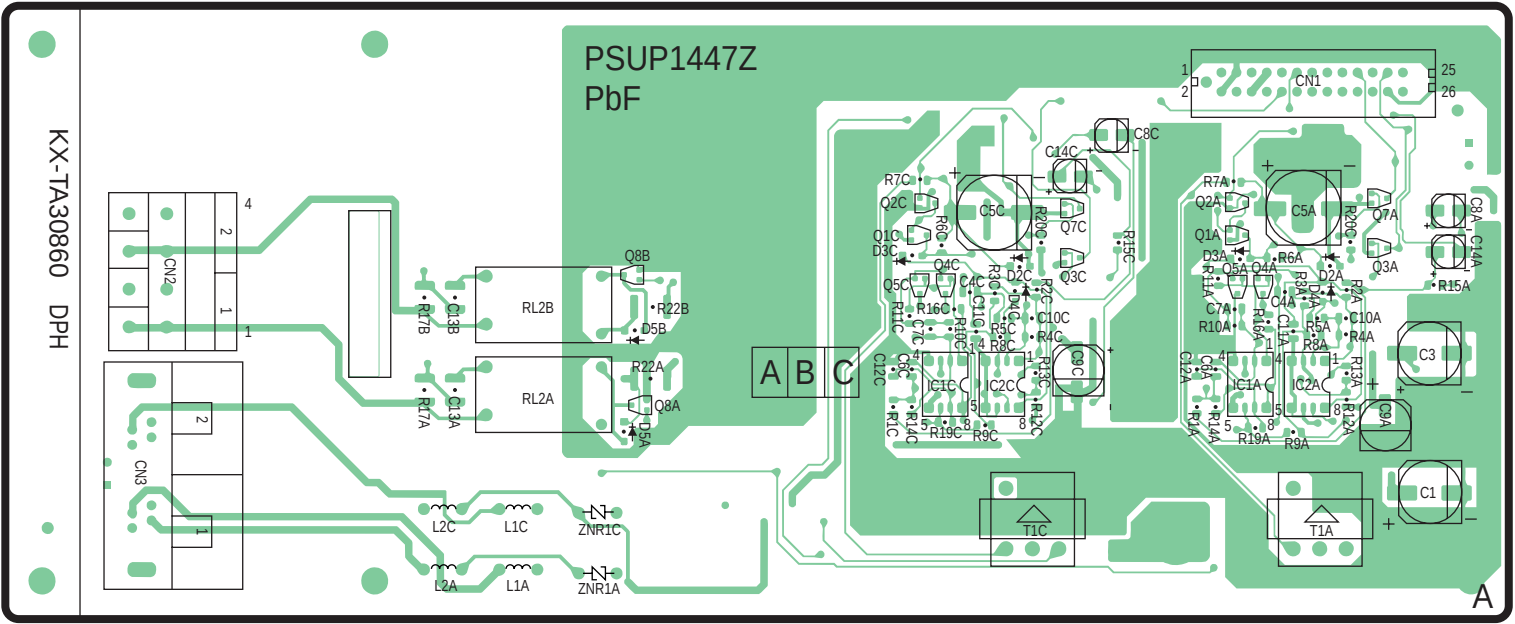

SERIAL-PARALLEL CONVERT IC
IC3A
IC7
HC139
CN1
D0,D1,D2,D3,D4,D5,D6,D7
A0,A1,A2,A3
IORD,IOWR,RESET
4.9152MHz
CO SELECTOR
DTMF AMPLIFIER
DTMF GENERATOR
IC14
IC15
IC10
SERIAL-PARALLEL CONVERT
IC3C
KX-TA308 CALLER ID CARD (2/2)


SURGE ABSORBER
LINE FILTER
INRUSH CURRENT PROTECTION
SWITCHING MOS FET
REGULATOR
VOLTAGE DETECTION
AC DOWN DETECTION (PRIMARY)
CONTROL
IC1
IC101
IC301
IC304
POWER AMPLIFIER
BUFFER
AC DOWN DETECTION (SECONDARY)
FEED BACK CIRCUIT
RINGING AMPLIFIER CIRCUIT
CN101
CN102
CN104
16µs
310V
17V
5.4V
1.9V
10V
240V
24V
20Hz
KX-TA308 POWER SUPPLY BOARD

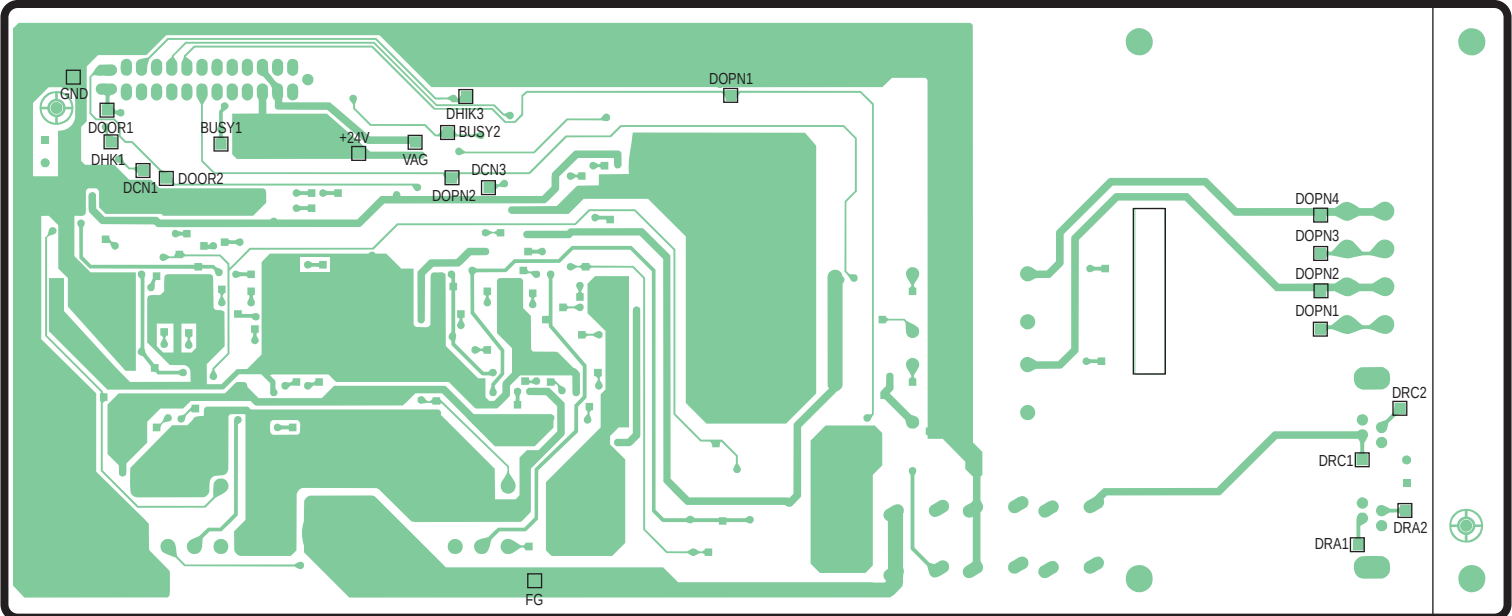

PSUP1194Y
B
CN9
CN11
CN30H
CN30G
CN30F
CN30E
CN30D
CN30C
CN30B
CN30A
CN10C
CN10B
CN10A
CN4
CN5
CN6
CN1
CN2
CN3
SM3
IC101
IC102
IC100
IC103
IC204
IC205
IC305
IC502
IC500
IC501
IC303
IC302
IC401
IC402
IC202
IC108
IC115
IC106
IC107
IC114
IC125
IC111
IC112
IC122
IC110
IC116
IC117
X101
X100
X300
X103
BATT
SW1
SW2
CLEAR SW
RESET CLEAR/NORMAL
T300
T200
T301
PC208
PC204
PC200
PC202
PC201
Q307
RY30
RY20
RY20A
SA1
SA3
ZNR20
ZNR30
ZNR32
ZNR31
ZNR33
ZNR2
L302A
L303A
L301A
L300A
L200C
L202C
L202B
L200B
L202A
L200A
C100
L100
L101
L102
L103
L104
L105
L106
L107
L108
L109
L110
L111
L112
L113
L114
L115
L116
L117
L118
L119
L120
L121
L122
L123
L124
L125
L126
L127
L128
L129
L130
L131
L132
L133
L134
L135
L136
L137
L138
L139



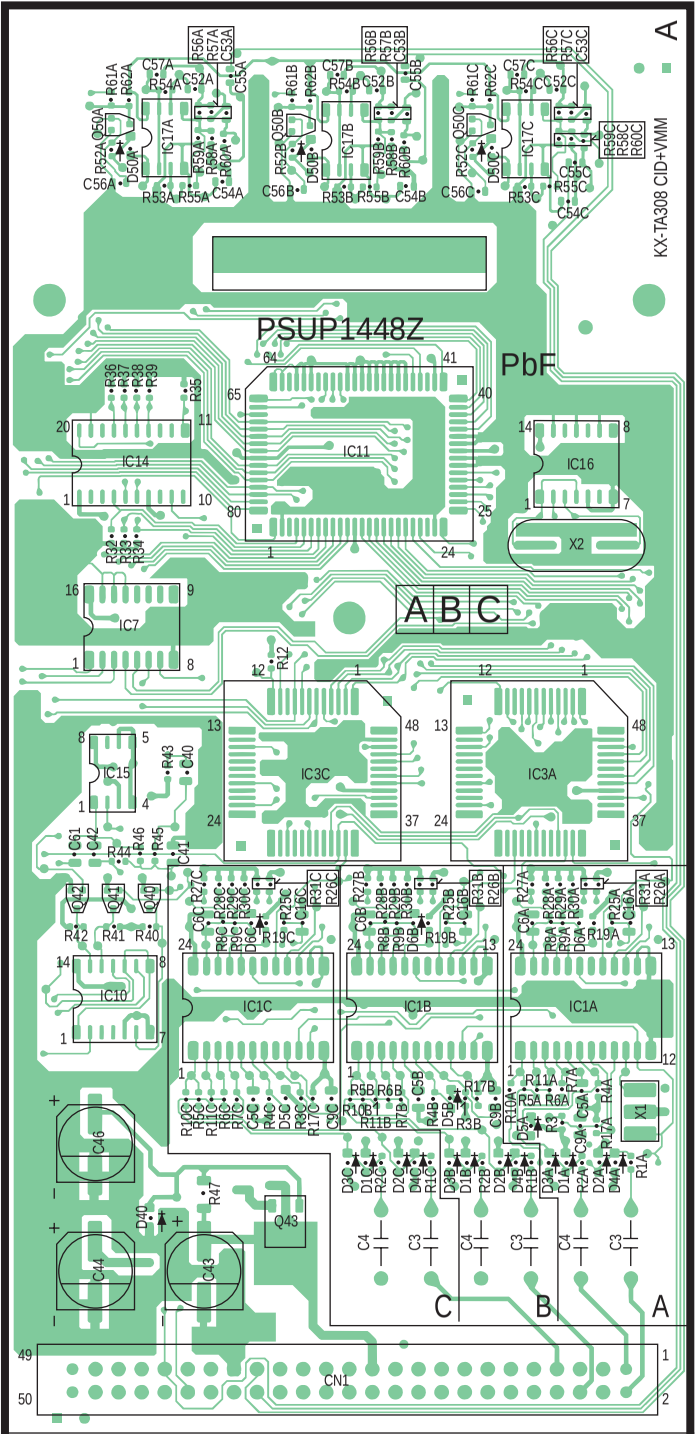
KX-TA308 MAIN BOARD BOTTOM VIEW



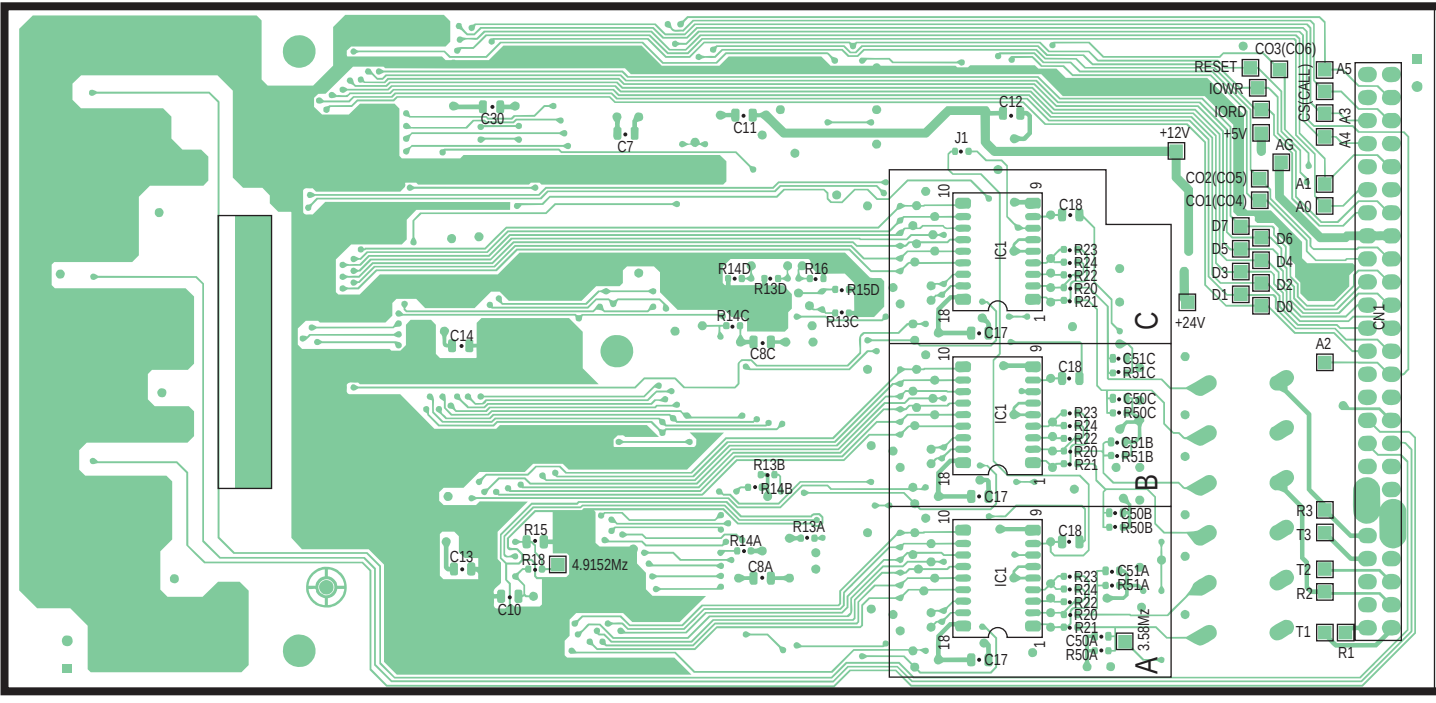
KX-TA308 DOORPHONE/DOOR-OPENER CARD COMPONENT VIEW



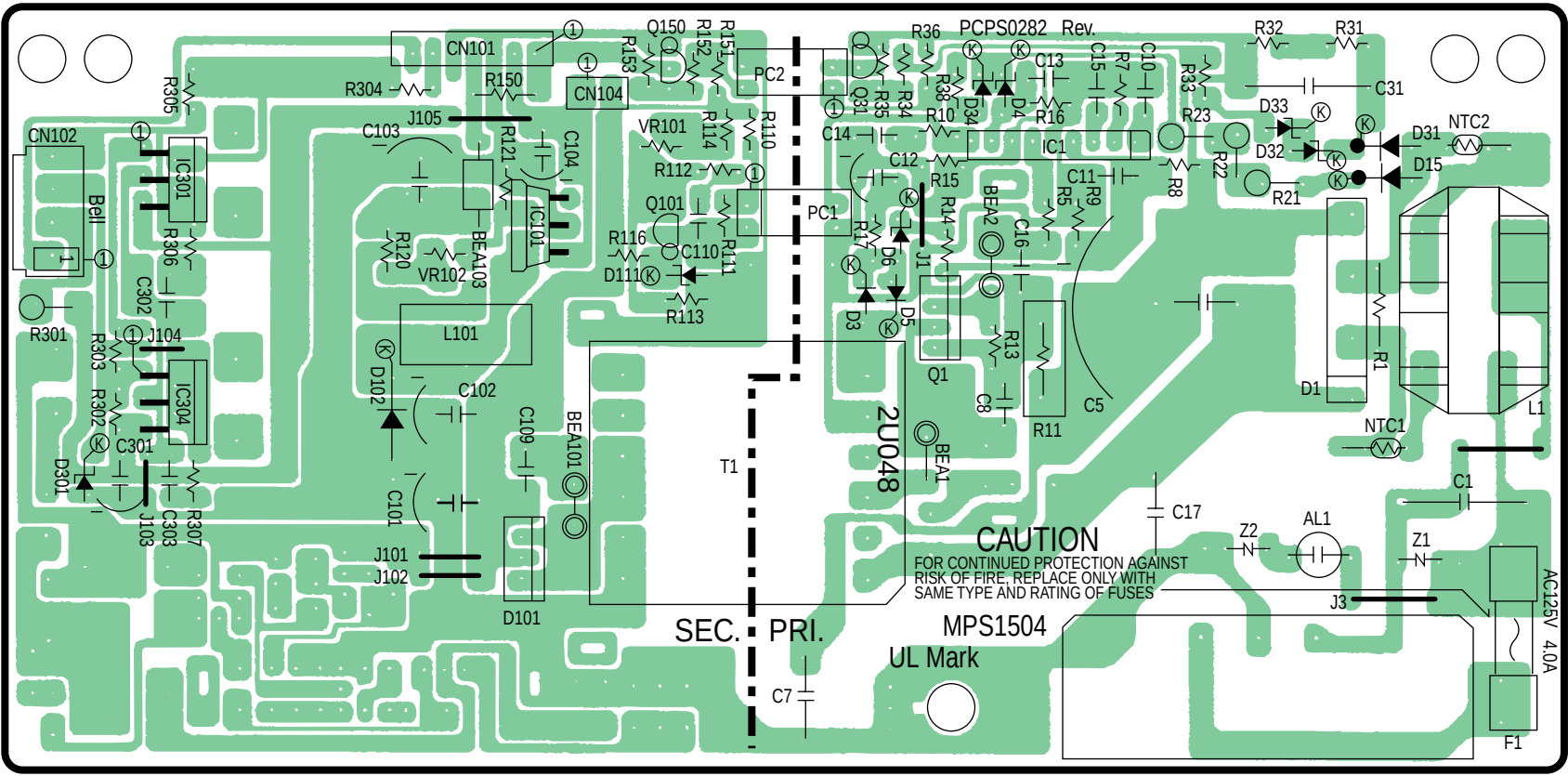
KX-TA308 DOORPHONE/DOOR-OPENER CARD BOTTOM VIEW



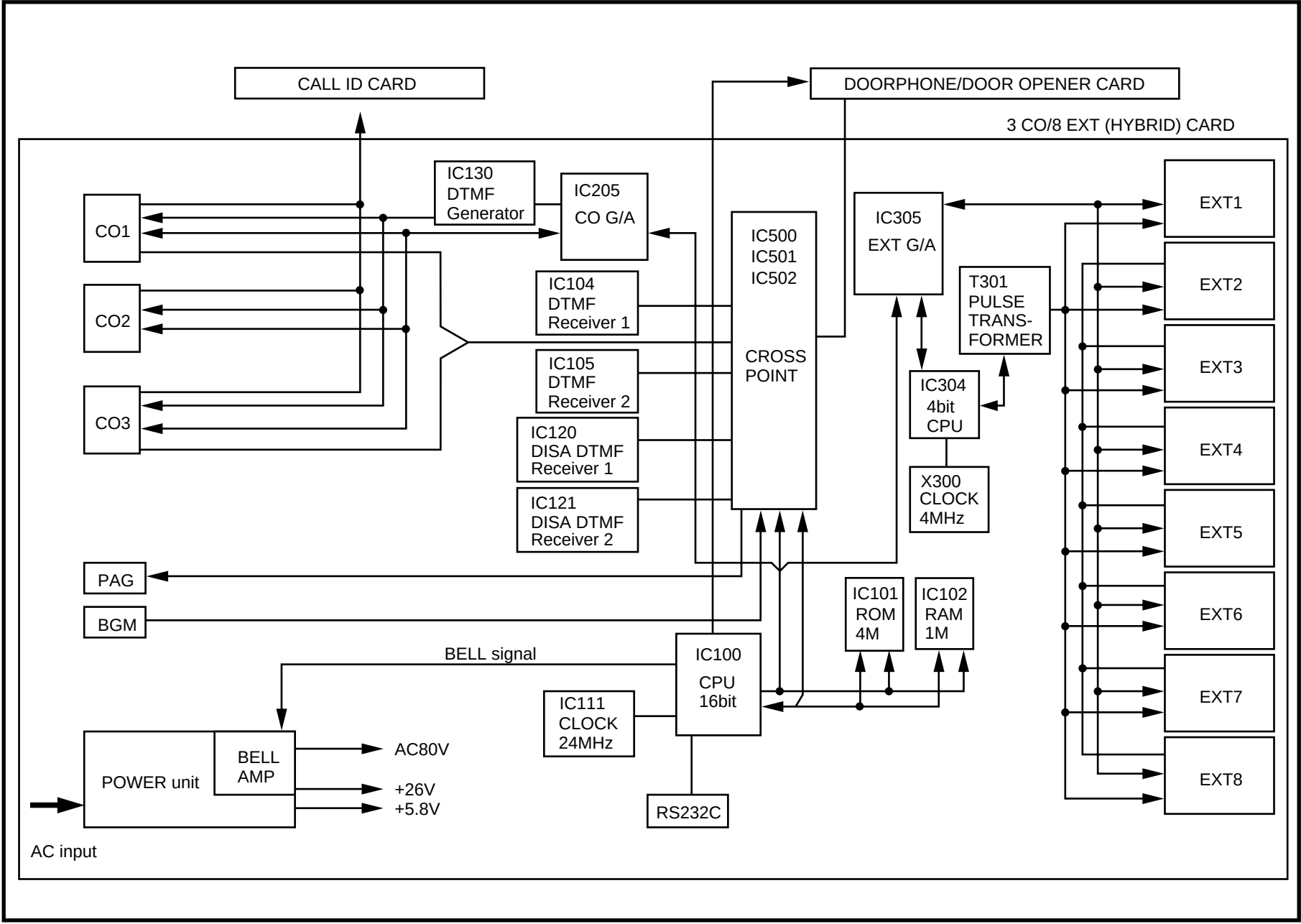
TA308 CID/VMM CARD

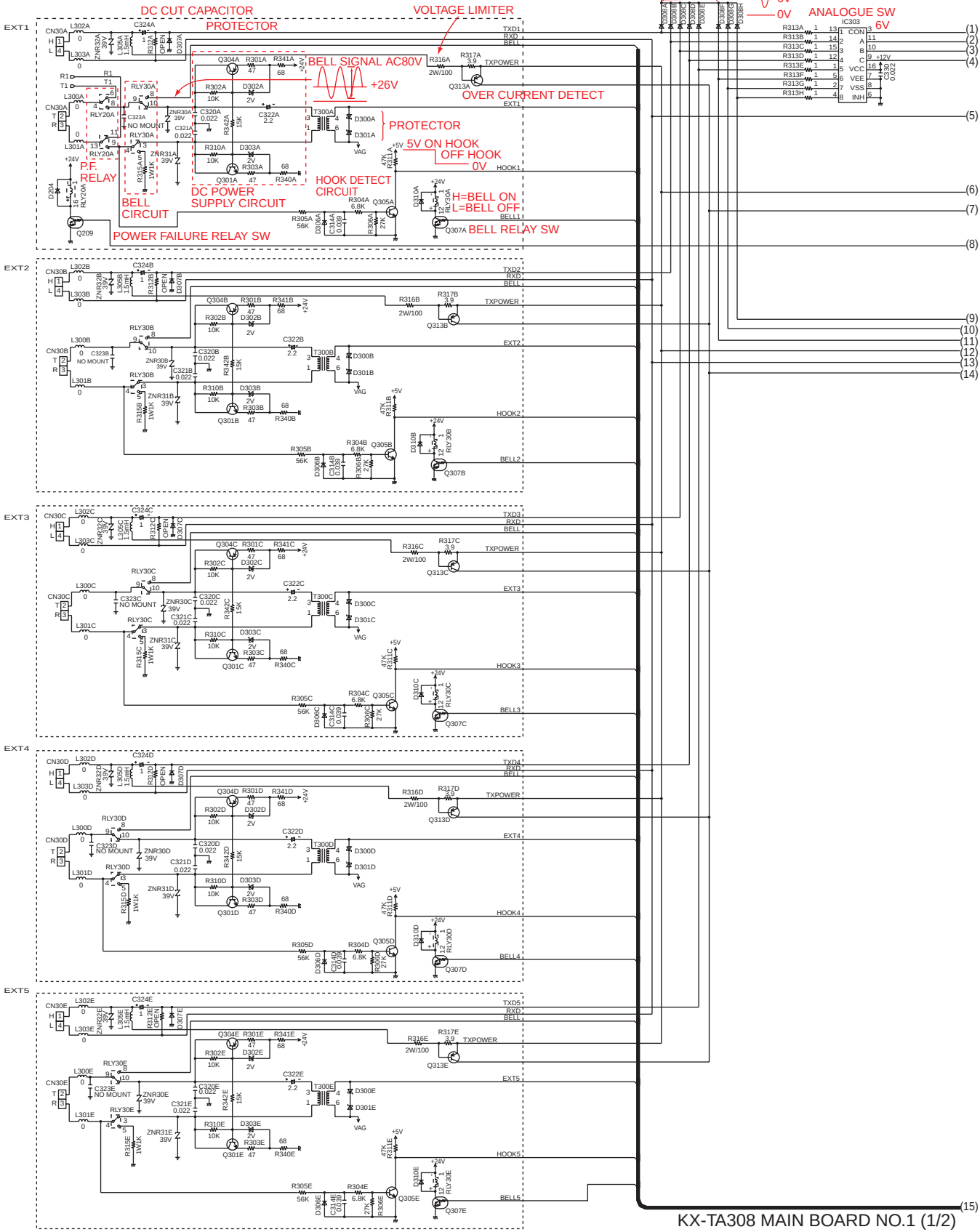


KX-TA308 CALLER ID CARD BOTTOM VIEW

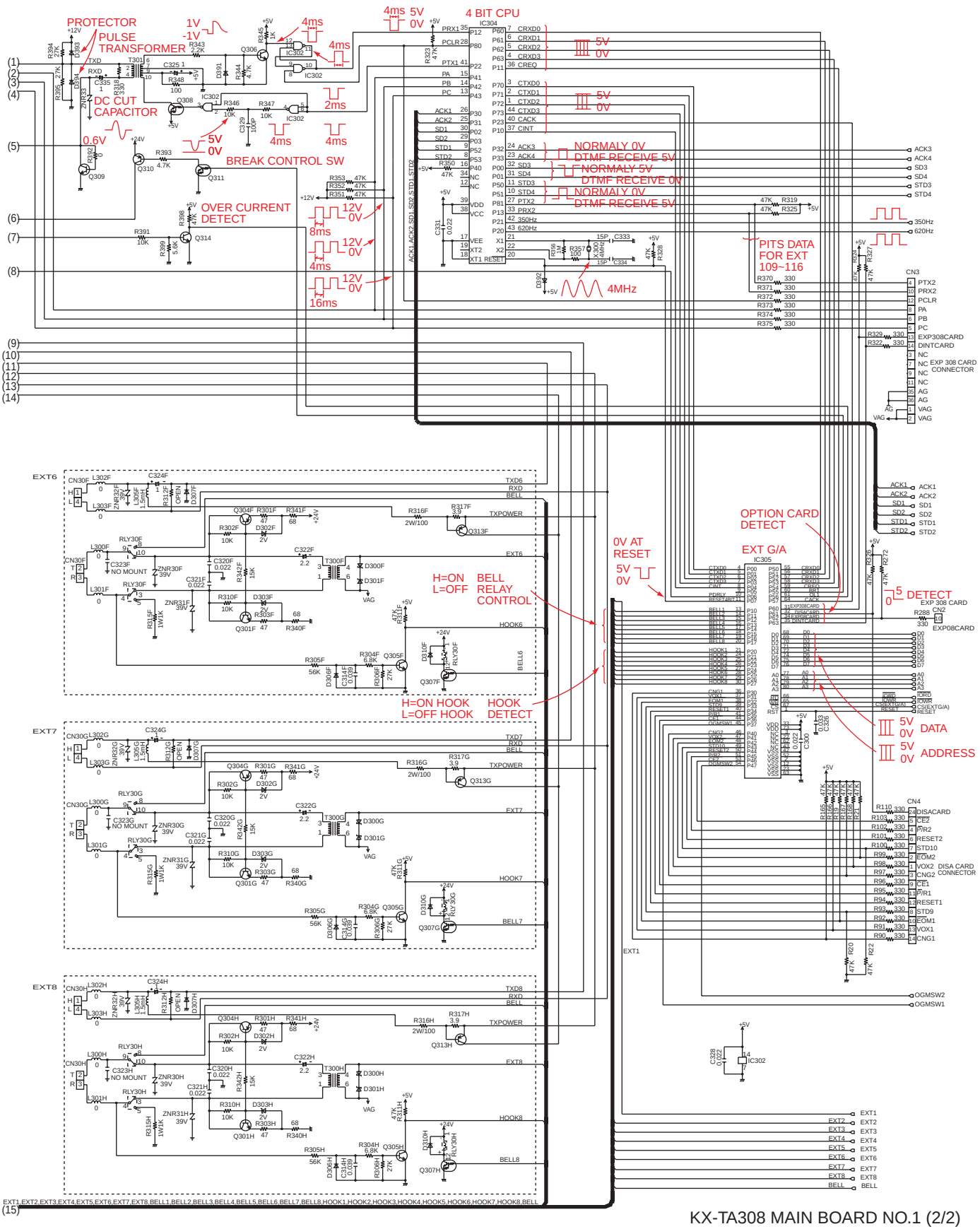


KX-TA308 POWER SUPPLY BOARD


CALL ID CARD
DOORPHONE/DOOR OPENER CARD
3 CO/8 EXT (HYBRID) CARD
IC130
DTMF
Generator
IC205
CO G/A
CO1
CO2
CO3
IC104
DTMF
Receiver 1
IC105
DTMF
Receiver 2
IC120
DISA DTMF
Receiver 1
IC121
DISA DTMF
Receiver 2
IC500
IC501
IC502
CROSS
POINT
IC305
EXT G/A
T301
PULSE
TRANS-
FORMER
IC304
4bit
CPU
X300
CLOCK
4MHz
EXT1
EXT2
EXT3
EXT4
EXT5
EXT6
EXT7
EXT8
PAG
BGM
IC101
ROM
4M
IC102
RAM
1M
BELL signal
IC100
CPU
16bit
IC111
CLOCK
24MHz
POWER unit
BELL
AMP
AC80V
+26V
+5.8V
RS232C
AC input



KX-TA308 MAIN BOARD NO.1 (1/2)


PROTECTOR
PULSE TRANSFORMER
DC CUT CAPACITOR
BREAK CONTROL SW
OVER CURRENT DETECT
4 BIT CPU
IC304
NORMALY 0V
DTMF RECEIVE 5V
NORMALY 5V
DTMF RECEIVE 0V
NORMALY 0V
DTMF RECEIVE 5V
4MHz
PITS DATA FOR EXT 109~116
CN3
EXP308CARD
DINTCARD
EXP 308 CARD CONNECTOR
OPTION CARD DETECT
EXT G/A
IC305
0V AT RESET
DETECT
EXP 308 CARD
CN2
EXP08CARD
H=ON L=OFF BELL RELAY CONTROL
H=ON HOOK L=OFF HOOK
HOOK DETECT
5V 0V DATA
5V 0V ADDRESS
CN4
DISA CARD CONNECTOR
EXT6
EXT7
EXT8
TXPOWER
HOOK6
HOOK7
HOOK8
BELL6
BELL7
BELL8
EXT1,EXT2,EXT3,EXT4,EXT5,EXT6,EXT7,EXT8,BELL1,BELL2,BELL3,BELL4,BELL5,BELL6,BELL7,BELL8,HOOK1,HOOK2,HOOK3,HOOK4,HOOK5,HOOK6,HOOK7,HOOK8,BELL

ORDER NO. KMS9908455S3

Service Manual

Supplement-2

ADVANCED HYBRID SYSTEM

KX-TA308RU
KX-TA616RU

KX-TA30860X
KX-TA30874X
KX-TA30877X
KX-TA30891X
KX-TA30893X
KX-A227X

(for Russia)

Please file and use this supplement manual together with the Service Manual for Model No. KX-TA308RU/KX-TA616RU, Order No. KMS9810332A3.

⚠ WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.
It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians.
Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

CHANGES

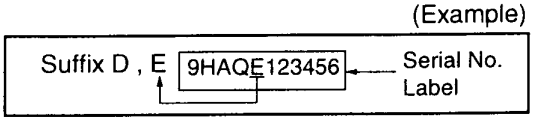
Subject:

- KX-TA308RU, KX-TA616RU

Suffix	Reason for suffix change
D→ E	Change of the power unit for improvement on quality. (PSLP1074ZB → PSLP1074ZC)

Suffix location:

(Example)



Panasonic

©1999 Kyushu Matsushita Electric Co., Ltd.
All rights reserved. Unauthorized copying and distribution is a violation of law.

■ REPLACEMENT PARTS LIST

Reason for Change	Following 1-8 reasons are indicated on the Notes in the bottom column.
1. Improve performance	**Note:**
2. Change of material or dimension	1. Part with mark *1 has been changed at the same time.
3. To meet approved specification	2. Part with mark *2 has seen in the original page 55, section:16/K and page 59, section 5-6/C.
4. Standardization	3. Part with mark *3 has seen in the original page 58, section:3/H and page 58, section:17/H.
5. Addition	4. Part with mark *4 has been shown at the original service manual (Order No.KMS9807289C3) page 58, section 3/I and section12/H.
6. Deletion	
7. Correction	
8. Other	

Interchangeability Code Following V-Z interchangeabilities are indicated on the Notes in the bottom column.

Parts		Set Production	Description
V	Original / New	Early (before change) / Late (after change)	Original or new parts may be used in early or late production sets. Use original parts until exhausted, then stock new parts.
W	Original / New	Early (before change) / Late (after change)	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
X	Original / New	Early (before change) / Late (after change)	New parts only may be used in early or late production sets. Stock new parts.
Y	Original / New	Early (before change) / Late (after change)	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
Z	Other		

● KX-TA308RU, KX-TA616RU

Ref. No.	Part No.		Part Name & Description	Pcs	Remarks	Notes		Time of change (Suffix)
	Original Part	**New Part**						
ACCESSORIES & PACKING MATERIALS								
P1	PSPK1515Z	**PSPK1515Y**	PACKING CASE (KX-TA308RU)	1	*1	8	W	
P1	PSPK1516Z	**PSPK1516Y**	PACKING CASE (KX-TA616RU)	1	*1	8	W	
P2	PSPN1062Z	**PSPN1089Z**	ACCESSORY BOX	1	*1	8	W	
P3	PSPD1081Z	----------	CUSHION, TOP	0	*1	6		
P4	PSPD1082Z	**PSPD1101Z**	COUSHION, BOTTOM	1	*1	8	W	
MAIN BOARD PARTS								
IC101	PSWITA308RU	**PSWITA308RU1**	IC (ROM)	1		1	X	
IC302	----------	**PQVITC4011BF**	IC	1	*2	5		
POWER SUPPLY BOARD PARTS								
D15, D31, D206	PQVDERA1506	**PSVDERA1506**	DIODE (SI)	3		7		
D34	----------	**PSVDHZS152**	DIODE (SI)	1	*3	5		
R16	----------	**ECQB1H473JF**	CAPACITOR, 0.047mF	1	*4	5		E

Reason for Change

Interchangeability Code

NT.(Q)
KXTA308RU/KXTA616RU
KXTA30860X/KXTA30874X
KXTA30877X/KXA227X
Printed in Japan